

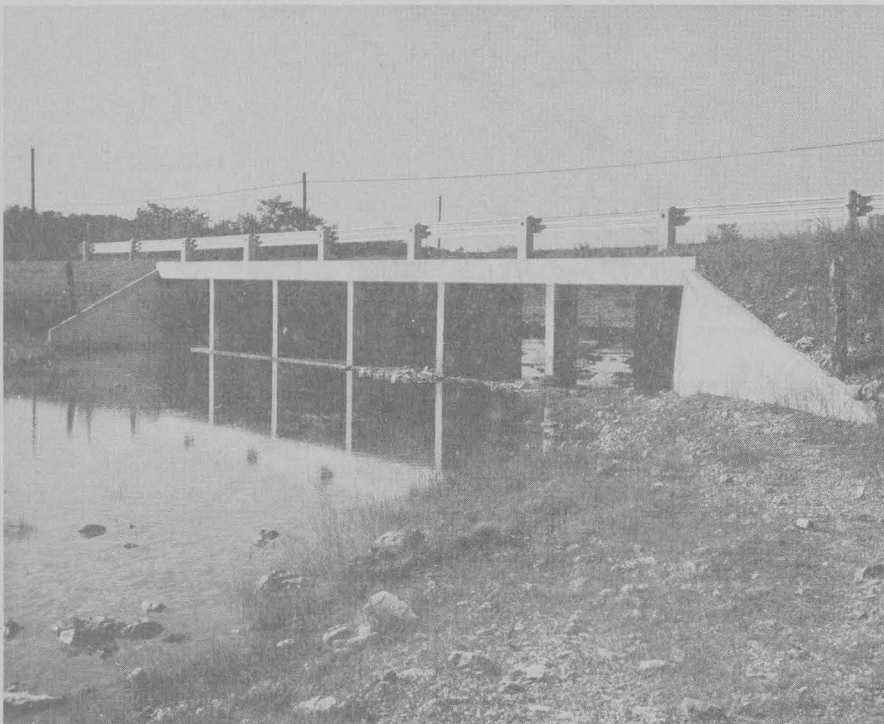
Floods on Small Streams in Texas

By Frederick H. Ruggles, Jr.

GEOLOGICAL SURVEY - WATER RESOURCES DIVISION

Texas District

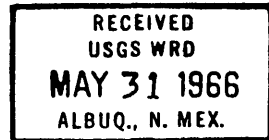
Trigg Twichell, District Chief



*Prepared in cooperation with the Texas Highway Department and
U. S. Department of Commerce, Bureau of Public Roads*

Open File No. 89-January 1966

FLOODS ON SMALL STREAMS IN TEXAS



By Frederick H. Ruggles, Jr.
Hydraulic Engineer

A PROGRESS REPORT

Prepared in cooperation with the Texas Highway Department
and

U. S. Department of Commerce, Bureau of Public Roads
By U. S. Geological Survey, Water Resources Division
Trigg Twichell, District Chief
Austin, Texas

Open File 89 - January 1966

Copies of this report may be obtained at
U. S. Geological Survey
Water Resources Division
Federal Building, 300 East 8th Street
Austin, Texas 78701

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INTRODUCTION

The first streamflow station in Texas was established on the Rio Grande at El Paso on May 10, 1889. Since that time the systematic collection of streamflow data has expanded. In 1915 the Texas Board of Water Engineers (now the Texas Water Development Board) entered into a cooperative agreement with the U. S. Geological Survey for the purpose of expanding the network of stream-gaging stations in Texas. Sites were selected for stream-gaging stations to obtain hydrologic data for water supply and flood control. Therefore, the stream-gaging stations were located principally on major streams. Today, after three-quarters of a century of hydrologic data collection, peak discharge data on small streams are still deficient in Texas. The Geological Survey and the Texas Highway Department, therefore, have entered into a cooperative program to collect peak discharge data on small streams for the purpose of deriving flood-frequency data needed for the economical design of culverts and small bridges.

Purpose and Scope

This report has been prepared to combine into one volume, the available runoff and rainfall information that might be used in the design of drainage structures spanning small streams in Texas. The report and information presented are considered interim to the later presentation of more useable flood data being obtained from a recently initiated comprehensive data-collection program on streams with drainage areas ranging from 1 to 20 square miles. A summary of flood data for stream-gaging stations and partial-record stations, a list of peak discharges for floods at miscellaneous sites on small streams, a summary of outstanding point rainfall amounts, a brief rainfall-frequency presentation, and a flood-frequency discussion are given in this report.

Data presented herein supplement that given in a report by Patterson (1963). Patterson's report presented flood-peak data and methods for predicting magnitude and frequency of floods on most streams in Texas. The available data necessarily limited Patterson's analyses to those involving streams with drainage areas in excess of 100 square miles.

Cooperation and Acknowledgments

The report was prepared under provisions of a cooperative agreement between the Texas Highway Department and the Geological Survey. The assistance of the Bureau of Public Roads, U.S. Department of Commerce, is gratefully acknowledged.

Trigg Twichell, district chief, Geological Survey, Austin, Texas, directed the preparation of this report.

DESCRIPTION OF RUNOFF DATA

Definition of Terms and Abbreviations

The terms of streamflow and other hydrologic data, as used in this report, are defined as follows:

Stream-gaging station is a particular site on a stream or a canal where systematic observations of gage height or discharge are obtained on a continuous basis.

Partial-record station is a particular site where limited streamflow data (usually either low flow or high flow) are collected systematically over a period of years for use in hydrologic analyses.

Cubic foot per second (cfs) is the rate of discharge of a stream whose channel is 1 square foot in cross-sectional area and whose average velocity is 1 foot per second.

Cubic feet per second per square mile (cfsm) is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Stage-discharge relation is the relation between water surface elevation (gage height) and the amount of water flowing in a channel, expressed as volume per unit of time.

The drainage area of a stream at a specified location is that area, measured in a horizontal plane, which is so enclosed by a topographic divide that direct surface runoff from precipitation normally would drain by gravity into the river above the specified point. Figures of drainage area given herein include all closed basins, or noncontributing areas, within the area unless otherwise noted.

Partial-duration flood series. A list of all flood peaks that exceed a chosen base stage or discharge, regardless of the number of peaks occurring in a year. (Also called basic stage flood series, or floods above a base.)

Downstream Order and Station Numbers

In this report, in a downstream direction along the main stem, all stations on a tributary entering above a main-stem station are listed before that station. If a tributary enters between two main-stem stations, it is listed between them.

As a means of identification, each gaging station has been assigned a station number. The numbers have been assigned in the downstream order used in this report. In assigning station numbers, no distinction is made between partial-record stations and stream-gaging stations, so that the station number for a partial-record station indicates downstream order position in a list made up of both types of stations. Gaps are left in the numbers to allow for new stations that may be established; hence, the numbers are not consecutive.

The complete number for each station, such as 08-0100.00, includes the part number "8" and a six-digit station number and is located to the left of the station name in "Station data." In this report the part number and only the essential digits of the complete number are shown. For example, for a station with the complete number 08-0100.00, the station number shown is 8-100. The part number is a means of identifying the major drainage system in which a station is located. Part 7 is drainage into the Lower Mississippi River basin and Part 8 is drainage into the Western Gulf of Mexico. In the "Station data" section of this report a number appears to the right of all gaging station names; this number corresponds to the State Highway District in which the station is located.

Explanation of Data

A summary of pertinent flood data through September 30, 1963, for all gaging stations with drainage areas of about 100 square miles or less is given in the section, "Section data." The locations of these stations are shown on plate 1. Numbers shown on the map are station identification numbers. Data summary for each station consists of a description of the station and a list of Peaks for the period of record. When 25 percent or more of the total runoff at a gaging station is artificially controlled, the record for the site has not been included.

The station description gives the location of the gaging station, drainage area, type and datum of gages, a brief statement concerning the stage-discharge relation, bankfull stage (where defined), historical flood data, and some general remarks concerning the station. Records furnished by another agency are so identified. The location and the drainage area for the gaging station are obtained from the best available maps. The datum of the gage is the elevation of the zero of the gage above mean sea level. Historical data were obtained through

interviews with local residents and from local newspapers. These historical data are shown for information, and generally the authority for the data is given. Under "Remarks," information is given on factors that affect the peak flow, such as storage or regulation, and other pertinent factors, such as rainfall stations operated by the Geological Survey in the basin and the base for the partial-duration series.

Peak flows above a base are tabulated for most stations; where peaks above a base are not available, only annual peaks are shown. The data have been tabulated on a water-year basis unless otherwise noted. The water year begins October 1 and ends September 30 and is identified by the year in which it ends; thus, a peak that occurred in October, November, or December 1950 would be listed in the 1951 water year.

Table 1 (after References) is a list of peak discharges for floods at miscellaneous sites. These data have been gathered over the years because of the outstanding nature of the event, or for a specific design problem. Headings and data are self-explanatory. These sites are shown on plate 2. May numbers refer to identification numbers shown in column 1 of table 1.

RAINFALL DATA

Climatic conditions in Texas range from humid along the lower reaches of the Sabine River to arid in the extreme western part of the State. Mean annual precipitation is 55 inches on the southeast boundary of Texas and decreases fairly uniformly westward to less than 10 inches near El Paso. Rainfall is erratic with long periods of little or no precipitation, followed at times by high intensity rainfalls of unusual quantities. Some of the highest rates of rainfall recorded in the United States have occurred in Texas. At D'Hanis in Medina County, 21.5 inches of rain fell in 3 hours on May 31, 1935, and at Thrall in Williamson County, 38.2 inches fell in 24 hours on September 9 and 10, 1921. A 20-inch rainfall in 24 hours has been recorded in most parts of the State.

Floods in Texas are caused by several different types of storms and may occur during any month of the year. Great floods have occurred most frequently during the months from April to October. Most of the major floods are caused by tropical or semi-tropical storms from the Gulf of Mexico. Some floods, such as those of April through June 1957, are caused by cooler air from the northwest colliding with warm, moisture-laden air from the Gulf. On rare occasions, large floods have been caused by storms crossing Mexico and the United States from the Pacific Ocean. Floods in the western part of the State are frequently caused by thunderstorms of high intensity which usually cover relatively small areas and occur during the summer or early fall. Following is a list of some outstanding point rainfalls in Texas that have been documented through the years.

Selected maximum rainfalls in Texas

Site	Date	Duration (time) ^{a/}	Amount (inches)	Authority
Thrall	Sept. 9-10, 1921	24 h	38.2	U. S. Weather Bureau
Hearne	June 28, 1899	24 h	24.0	U. S. Weather Bureau
Taylor	Sept. 9, 1921	24 h	23.11	U. S. Weather Bureau
San Antonio	Sept. 9-10, 1946	24 h	21.0	U. S. Geological Survey
Austin	Sept. 9, 1921	24 h	19.03	U. S. Weather Bureau
Carlsbad	Sept. 16, 1936	24 h	18.0	U. S. Geological Survey
Moulton	June 30, 1940	24 h	17.98	U. S. Weather Bureau
San Antonio (near)	Sept. 9, 1921	24 h	17.0	U. S. Geological Survey
Westfield	Dec. 7, 1935	24 h	15.48	U. S. Geological Survey
Smithville	June 30, 1940	15 h	16.0	U. S. Weather Bureau
Thrall	Sept. 9-10, 1921	12 h	29.8	U. S. Weather Bureau
Taylor	Sept. 9, 1921	12 h	18.96	U. S. Weather Bureau
Engle	June 30, 1940	12 h	17.5	U. S. Weather Bureau
San Antonio (11 mi SE)	Sept. 27, 1946	11 h	16.67	U. S. Geological Survey
De Leon (5.5 mi E)	May 23, 1952	9 h	20.0	U. S. Geological Survey
Fort Worth	May 16-17, 1949	9 h	11.0	U. S. Geological Survey
Frisco	Sept. 21, 1964	8 h	14.0	U. S. Geological Survey
Thrall	Sept. 9-10, 1921	6 h	19.6	U. S. Weather Bureau
Adell	July 27, 1962	6 h	17	Texas Water Commission
Taylor	Sept. 9, 1921	6 h	14.16	U. S. Weather Bureau
Mineral Wells	July 27, 1962	6 h	14.0	Texas Water Commission
Fort Worth	Sept. 7, 1962	5 h	11.5	U. S. Geological Survey
D'Hanis	May 31, 1935	3 h	21.5	U. S. Weather Bureau
Taylor	Sept. 9, 1921	3 h	10.72	U. S. Weather Bureau
Dallas	Oct. 8, 1962	3 h	7.46	U. S. Geological Survey
Lelia Lake	June 15, 1938	2½ h	14	U. S. Geological Survey
Galveston	Apr. 22, 1904	2 h	7.58	U. S. Weather Bureau
Taylor	Sept. 9, 1921	2 h	7.51	U. S. Weather Bureau
Galveston	Oct. 22, 1913	1 h	5.31	U. S. Weather Bureau
Del Rio	Feb. 27, 1921	1 h	4.82	U. S. Weather Bureau
El Paso	July 9, 1881	1 h	4.80	U. S. Weather Bureau
Taylor	Sept. 9, 1921	1 h	4.25	U. S. Weather Bureau
Dallas	Oct. 8, 1962	1 h	3.95	U. S. Geological Survey
Abilene	July 31, 1911	1 h	3.47	U. S. Weather Bureau
Amarillo	June 24, 1948	1 h	3.36	U. S. Weather Bureau
El Paso	July 9, 1881	30 m	3.09	U. S. Weather Bureau
Taylor	Sept. 9, 1921	30 m	2.89	U. S. Weather Bureau
Taylor	Sept. 9, 1921	15 m	2.53	U. S. Weather Bureau
Galveston	June 4, 1871	14 m	3.95	U. S. Weather Bureau
Taylor	Sept. 9, 1921	10 m	2.00	U. S. Weather Bureau
Taylor	Sept. 9, 1921	5 m	1.30	U. S. Weather Bureau

^{a/} h - hour
m - minute

RAINFALL FREQUENCY

For the conterminous United States the U. S. Weather Bureau has published a report (Hershfield, 1961) that is a convenient summary of empirical relationships, working guides, and maps useful in practical problems requiring rainfall frequency data. The paper is divided into two parts. The first part presents the rainfall analyses. The second part presents rainfall frequency maps based on a comprehensive collection of up-to-date statistics, several related maps, and seasonal variation diagrams. The rainfall frequency maps are for selected durations from 30 minutes to 24 hours and return periods from 1 to 100 years. Figures 1-12 are maps of Texas, showing the maximum 30-minute, 1-, 2-, 3-, 6-, and 12-hour rainfall for 10- and 50-year frequencies. Figure 13 is a map showing the probable maximum 6-hour precipitation for a 10-square mile area.

For larger drainage areas, consideration must be given not only to point rainfall, but to average depth over the entire basin. The area-depth curves shown in figure 14 can be used with data obtainable from figures 1-12 to estimate the probable areal extent of rainfalls of varying magnitude, duration, and frequency. The method is to choose a point rainfall value from the appropriate map of figures 1-12 and multiply it by the appropriate value selected from figure 14. The resulting product is the average depth of rainfall over that area for the chosen duration and frequency.

In the absence of factual runoff-frequency data, the preceding rainfall-frequency data can be used to estimate runoff of specific frequency for the design of storm drainage structures. However, the possible inaccuracies in the runoff values estimated in this manner should be recognized. Obviously, a storm rainfall of 10-year frequency will not always result in a peak discharge of 10-year frequency; therefore, hydrologists always prefer to use basic runoff data when available. Data on rainfall magnitude and frequency are presented here solely to provide the reader with all the available data, both runoff and rainfall, usable in the design of drainage structures on small streams in Texas.

FLOOD FREQUENCY

In recent years the Geological Survey has prepared two publications (Patterson, 1963; Benson, 1964) dealing with flood frequency in Texas. Patterson outlines methods by which the magnitude and frequency of expected floods for most large streams in Texas can be predicted. Methods outlined by Patterson will be the basis for flood design used in the State until more data make possible additional flood-frequency analyses.

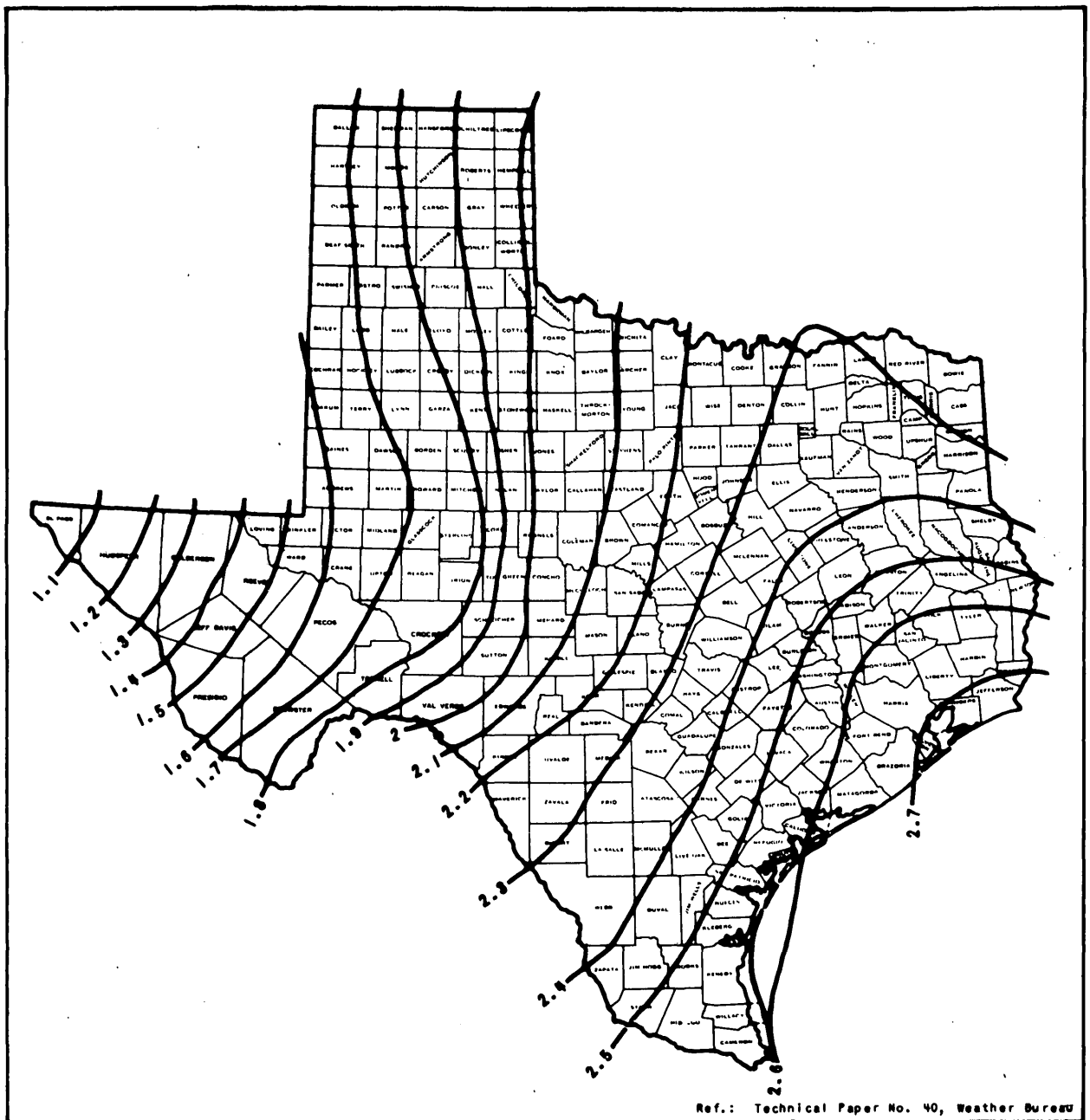


Figure 1.—Maximum 30-minute rainfall, ten-year frequency in Texas

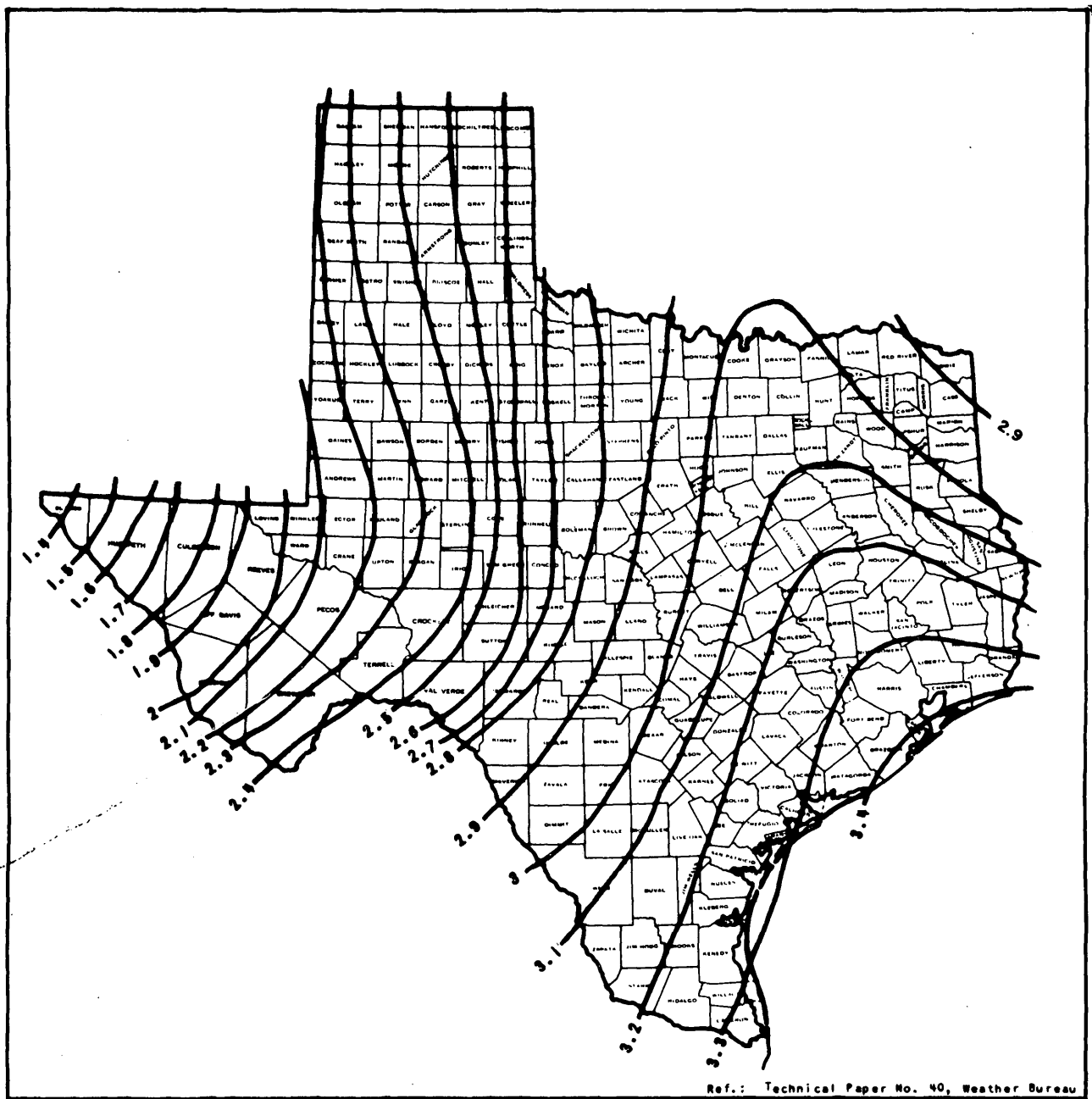


Figure 2.—Maximum 30-minute rainfall, 50-year frequency in Texas

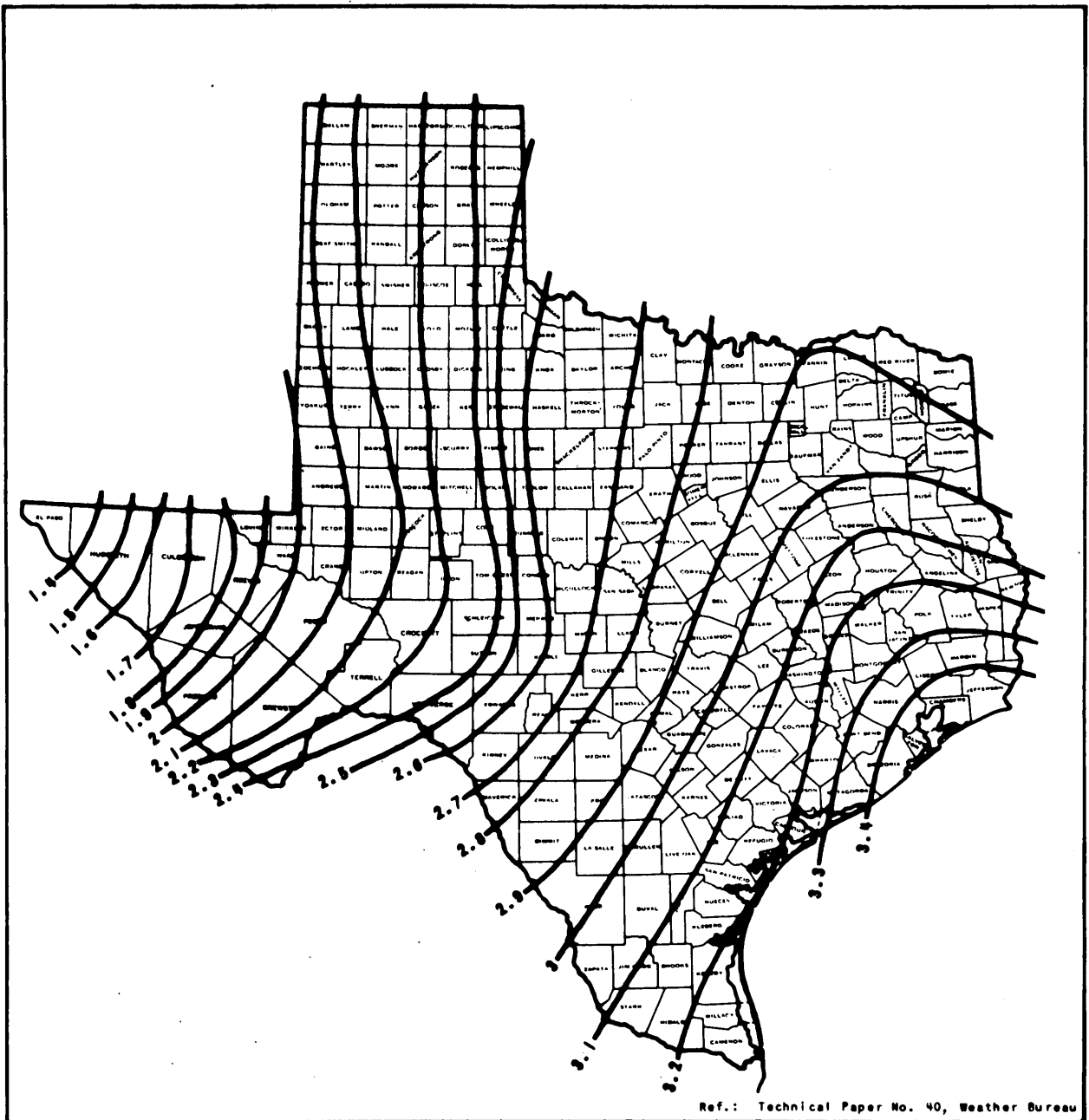
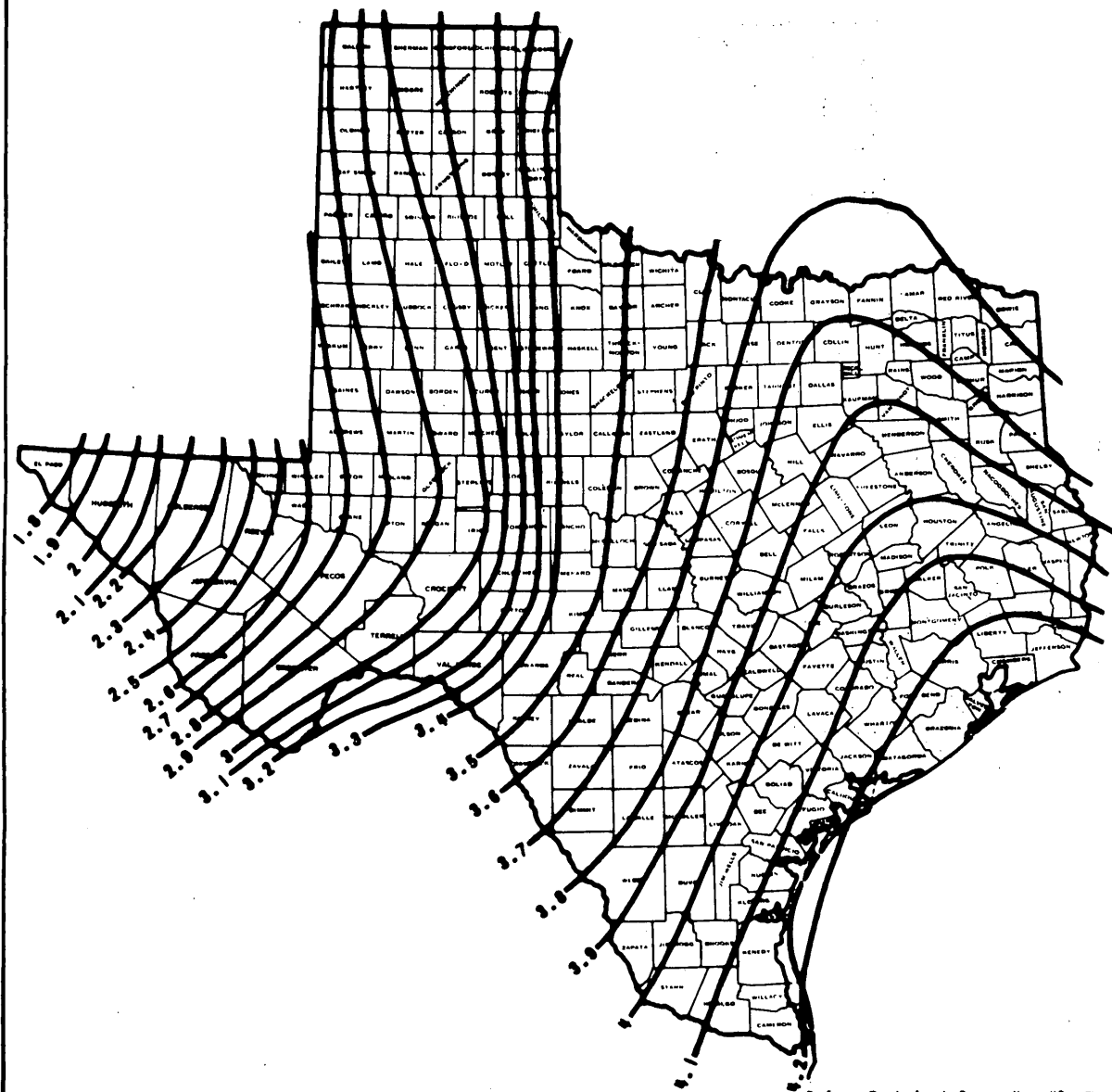


Figure 3.—Maximum one-hour rainfall, 10-year frequency in Texas



Ref.: Technical Paper No. 40, Weather Bureau

Figure 4.—Maximum one-hour rainfall, 50-year frequency in Texas

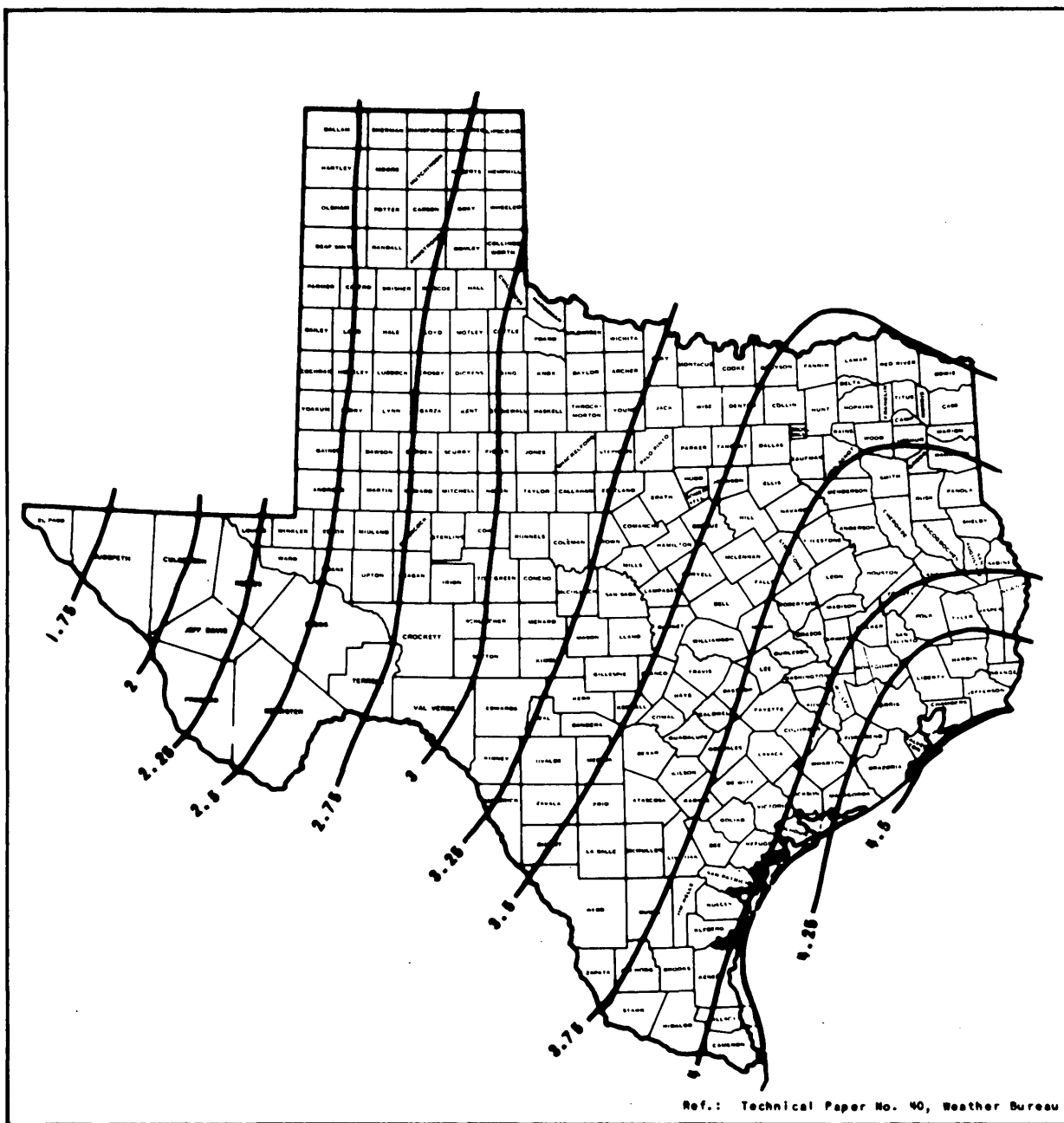


Figure 5.—Maximum two-hour rainfall, 10-year frequency in Texas

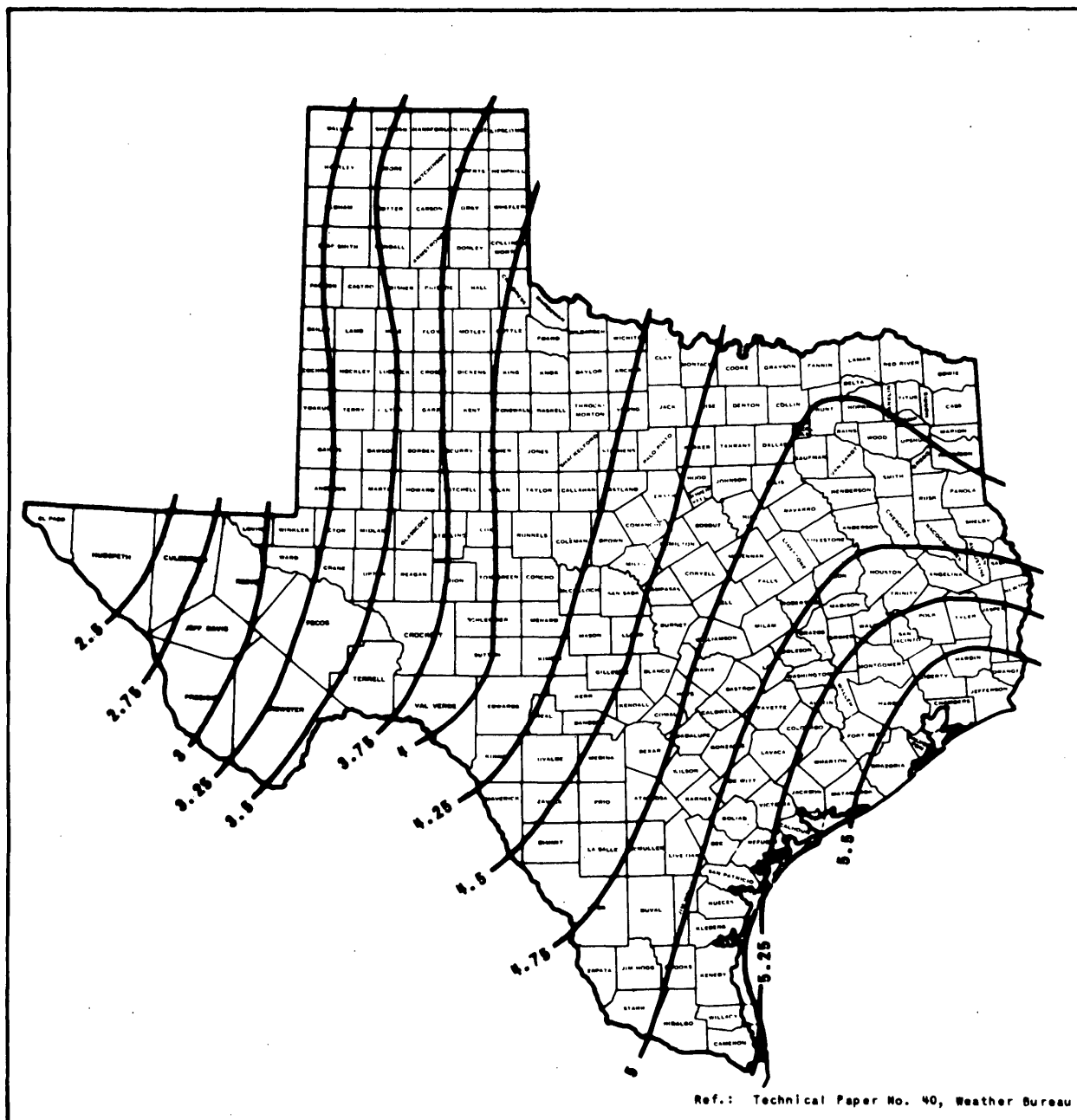


Figure 6.—Maximum two-hour rainfall, 50-year frequency in Texas

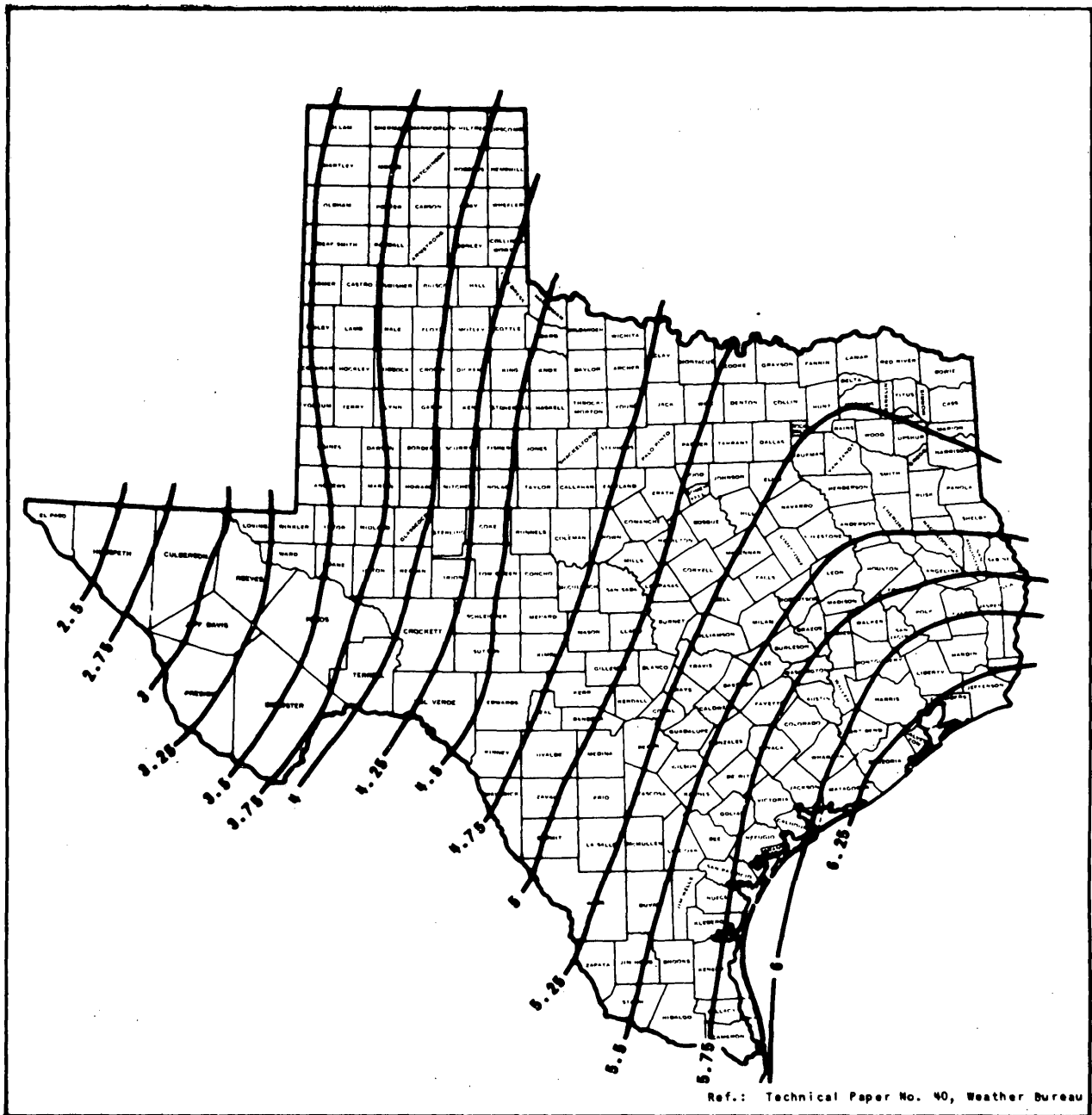


Figure 8.-Maximum three-hour rainfall, 50-year frequency in Texas

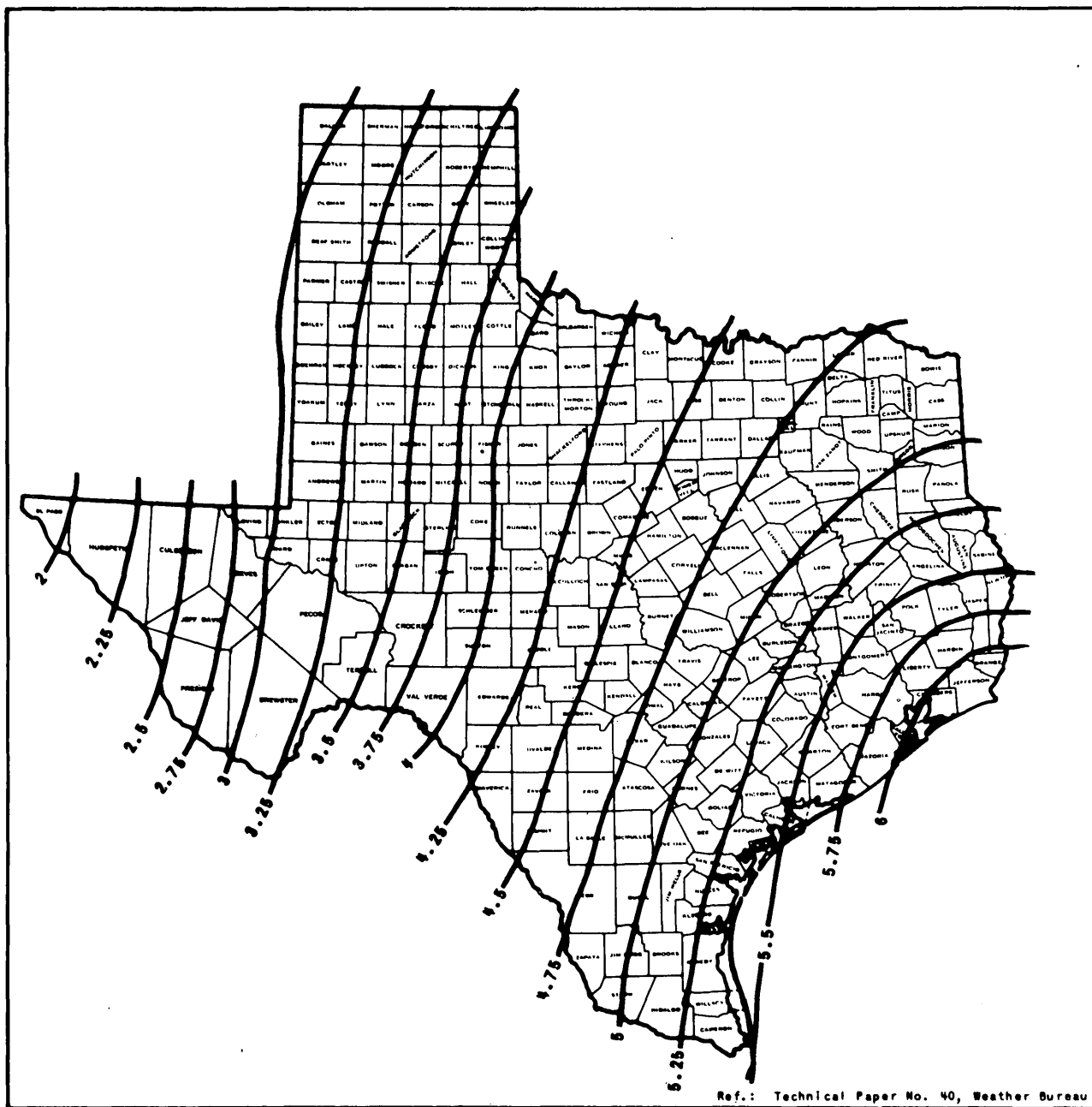


Figure 9.—Maximum six-hour rainfall, 10-year frequency in Texas

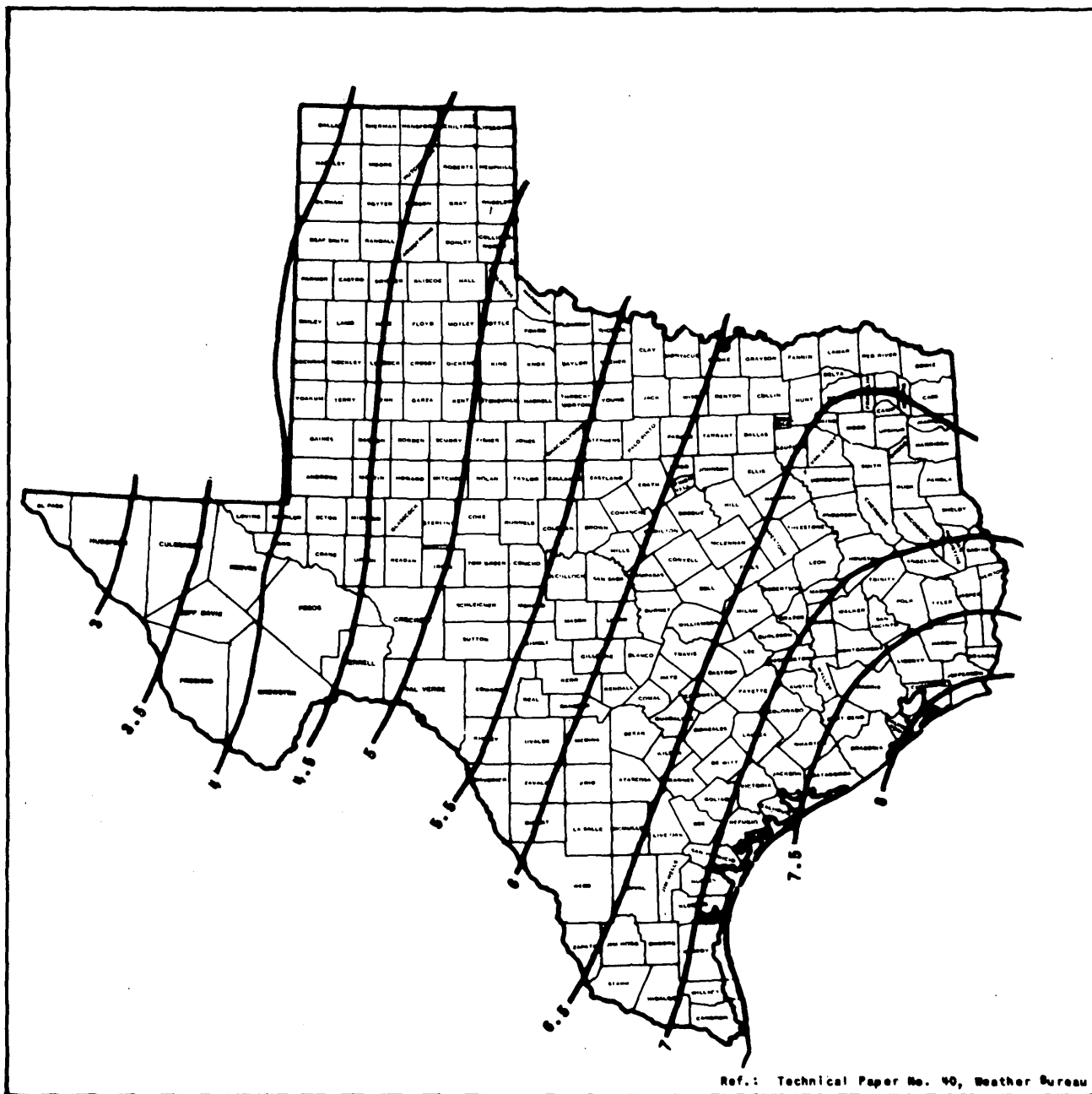


Figure 10.—Maximum six-hour rainfall, 50-year frequency in Texas

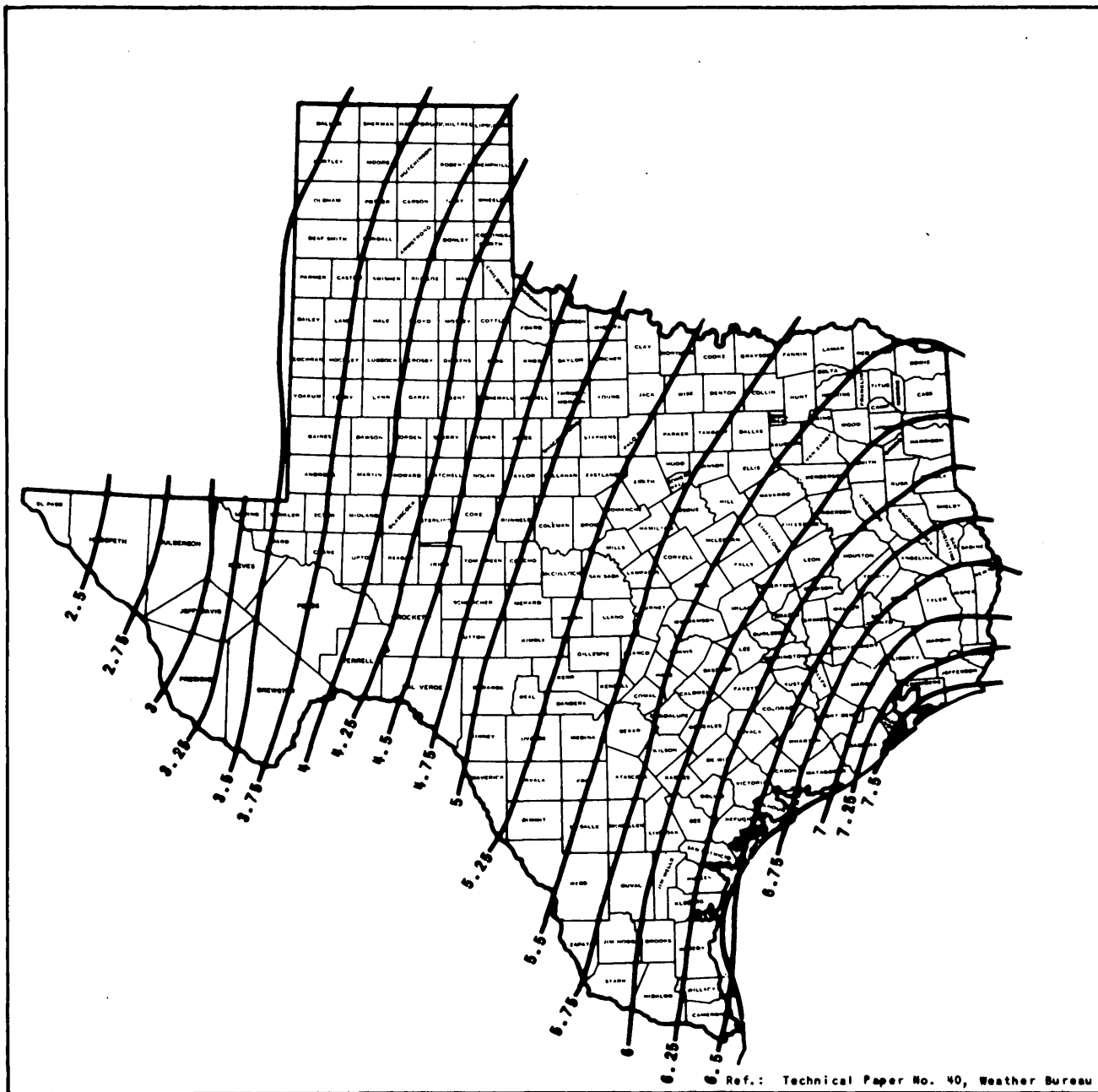


Figure 11.—Maximum 12-hour rainfall, 10-year frequency in Texas

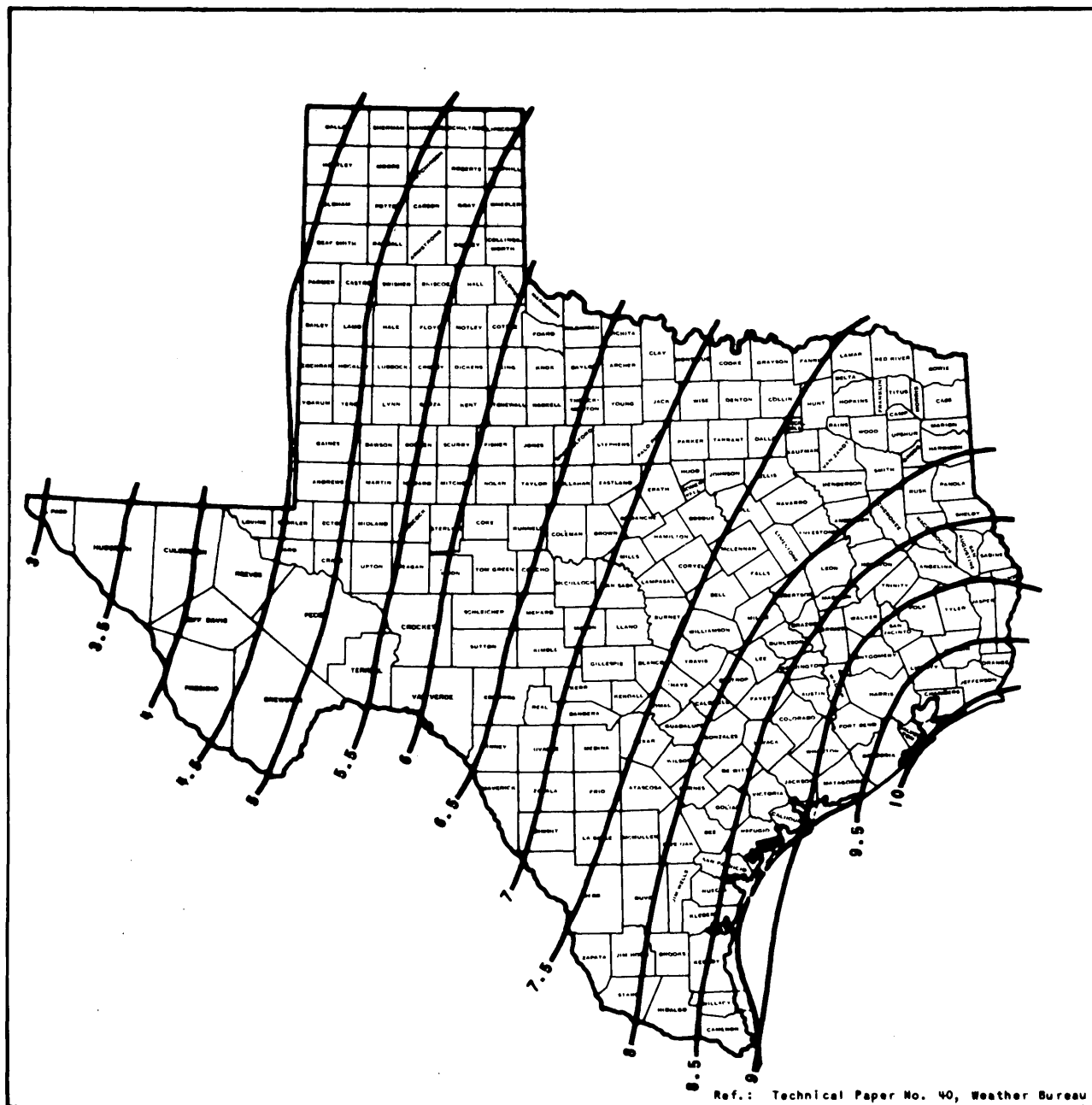


Figure 12.—Maximum 12-hour rainfall, 50-year frequency in Texas

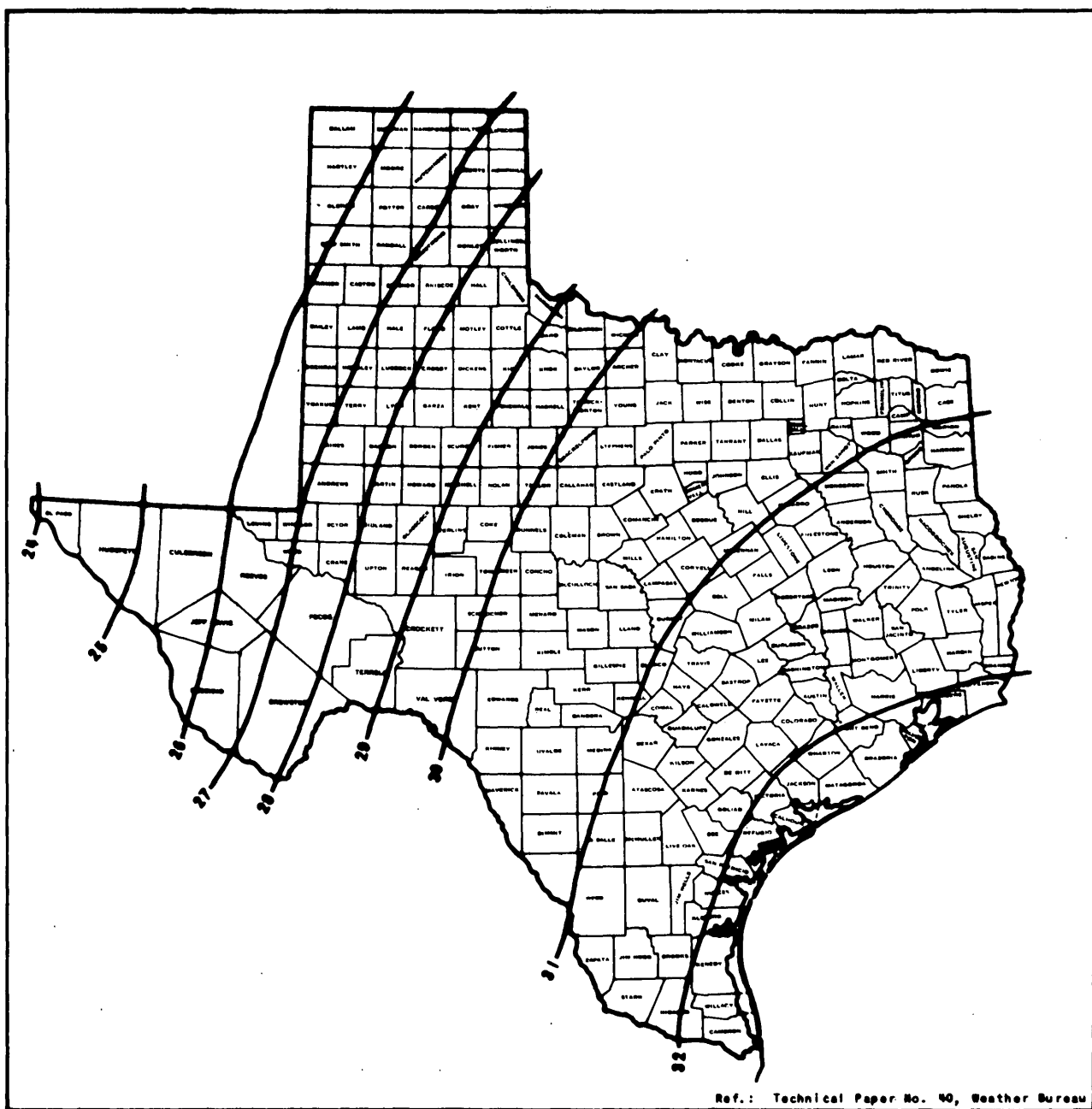


Figure 13.—Probable maximum 6-hour precipitation (inches) for 10 square miles in Texas

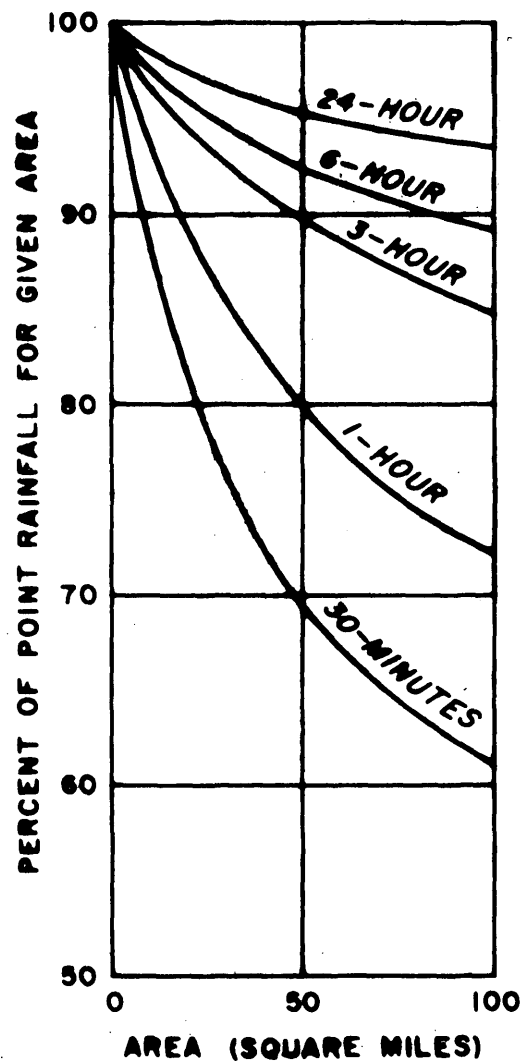


FIGURE 14.- Area-depth rainfall curves

Benson offers the most promising approach to evaluating magnitude and frequency of floods on small streams in Texas. He has shown that peak discharge for a selected frequency in Texas (excluding Red River drainage) can be described by certain meteorologic and basin characteristics. In general, these characteristics can be called hydrologic factors. Analyses of the data led to the conclusion that the following were the most important factors to be considered:

1. Contributing drainage area
2. Rainfall intensity
3. Geology
4. Soil cover
5. Basin length
6. Number of thunderstorm days per year
7. Ratio of runoff to precipitation
8. Main channel slope
9. Percent of lakes and ponds

Chow (1962), Potter (1961), and others have endeavored to utilize hydrologic factors as a means of predicting peak rates of runoff on small streams. However, the lack of data necessary to verify the methods requires that caution be used when applying these methods to small streams in Texas. The cooperative program between the Geological Survey and the Texas Highway Department is designed to overcome this lack of data.

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Table 1.--Peak discharge at miscellaneous sites

Map No.	Texas Highway District	Stream and place of determination	Drainage area (sq mi)	Peak discharge		
				Date	Cfs	Cfs per sq mi
Arkansas River basin						
1	4	Red Deer Creek at State Highway 70, 2½ miles north of Pampa....	3.4	May 16, 1951	3,430	1,010
2	4	Bluff Creek 1 mile northwest of Miami.....	24.7	June 5, 1951	10,900	441
3	4	Red Deer Creek tributary at U.S. Highway 60, 9.1 miles northeast of Miami.....	1.0	June 5, 1951	1,610	1,610
Red River basin						
4	25	Lake Creek near Lelia Lake.....	48.6	June 15, 1938	40,800	840
5	25	Lake Creek near Headly.....	68.5	June 15, 1938	64,700	945
6	4	McClellan Creek at State Highway 70, 15.2 miles west of Alanreed.....	62.4	May 16, 1951	8,720	140
7	4	McClellan Creek at reservoir near Alanreed.....	86	May 16, 1951	10,100	118
8	4	McClellan Creek 4 miles north of Alanreed.....	90	June 8, 1937	11,900	132
9	25	Hackberry Creek tributary No. 1 at State Highway 152, at Wheeler.....	2.0	June 5, 1951	1,460	730
10	25	Hackberry Creek tributary No. 2 at State Highway 152, at Wheeler.....	1.2	June 5, 1951	2,340	1,950
11	25	Hackberry Creek tributary No. 3 half a mile upstream from State Highway 152 bridge, near Wheeler.....	2.4	June 5, 1951	2,920	1,220
12	25	Hackberry Creek 1.2 miles north of Wheeler.....	12.1	June 5, 1951	5,560	460
Sabine River basin						
13	11	Flat Fork Creek near Center.....	58	July 24, 1933	42,200	728
Trinity River basin						
14	2	Big Fossil Creek tributary near Haslet.....	0.92	Sept. 7, 1962	878	955
15	2	Big Fossil Creek at Highway 377 at Haltom City.....	42.8	Sept. 7, 1962	31,800	742
16	18	South Hickory Creek 4 miles north of Ponder.....	23.0	Sept. 7, 1962	18,400	800
17	18	Harriet Creek 4.4 miles north of Haslet.....	14.3	Sept. 7, 1962	14,100	987
18	18	Floyd Branch at Valley View Road at Dallas.....	3.18	Oct. 8, 1962	4,030	1,270
19	18	White Rock Creek at Skillman Street at Dallas.....	73.1	Sept. 21, 1964	42,300	578
Brazos River basin						
20	20	Seven Mile Draw at Ames.....	2.4	Sept. 26, 1936	5,140	2,140
21	8	Ku Creek at U.S. Highway 33, near Aspermont.....	3.2	Sept. 25, 1955	3,000	938
22	2	Turkey Creek at Highway 281 near Mineral Wells.....	9.66	July 27, 1962	4,300	445
23	2	Pollards Creek 0.3 mile north of Mineral Wells.....	3.84	July 27, 1962	12,100	316
24	2	Rock Creek at Mineral Wells Dam.....	74.4	July 27, 1962	15,810	213
25	9	Childress Creek ½ miles north of China Springs.....	79	Sept. 26, 1936	47,000	595
26	2	North Bosque River at U.S. Highway 377, in Stephenville.....	93.3	May 23, 1952	40,000	429
27	2	Green Creek half a mile above U.S. Highway 67, near Dublin.....	11.6	May 23, 1952	18,900	1,630
28	9	Cow Bayou subwatershed No. 4 near Bruceville.....	5.25	May 11, 1957	6,900	1,310
29	9	Harris Creek near McGregor 1.5 miles east.....	8.85	June 16, 1964	10,800	1,220
30	9	Harris Creek near McGregor 5.8 miles east.....	20.9	June 16, 1964	22,100	1,060
31	23	Sulphur Creek near Lampasas.....	78.0	May 12, 1957	65,300	837
32	23	Burleson Creek 1.7 miles northwest of Lampasas.....	7.4	May 12, 1957	14,300	1,930
Colorado River basin						
33	7	Mountain Creek at Mountain Creek Reservoir at Robert Lee.....	25.5	Aug. 19, 1953	16,700	655
34	7	Cow Creek at bridge on State Highway 158, near Bronte.....	6.3	Aug. 19, 1953	5,200	825
35	7	Pecan Creek 2.3 miles above mouth, 10 miles south of San Angelo.....	81	Sept. 15, 1936	30,500	377
36	7	West Fork Grape Creek 2½ miles above mouth, 17.6 miles north-northwest of San Angelo.....	17	Sept. 17, 1936	14,200	835
37	7	East Fork Grape Creek 1½ miles above mouth, 16.2 miles north-northwest of San Angelo.....	32	Sept. 17, 1936	23,500	734
38	7	Grape Creek 1 mile below confluence of East and West Forks, 15.2 miles north-northwest of San Angelo.....	53	Sept. 17, 1936	31,800	600
39	7	Grape Creek at Gulf, Colorado and Santa Fe RR., 4 miles south-east of Carlsbad.....	79	Sept. 17, 1936	45,600	577
40	7	Dry Creek 9½ miles above Gulf, Colorado and Santa Fe RR., 13 miles north of San Angelo.....	14	Sept. 17, 1936	24,600	1,760
41	7	Dry Creek at Gulf, Colorado and Santa Fe RR. bridge 8 miles northwest of San Angelo.....	48	Sept. 17, 1936	19,200	400
42	8	Salt Creek near Doole.....	88.2	July 23, 1938	20,400	231
43	8	Deep Creek near Milburn.....	59.2	July 23, 1938	33,600	568
44	7	East Fork Terrett Draw 1½ miles above Coal Kiln Draw, 10½ miles southwest of Fort McKavett.....	19	Sept. 16, 1936	12,100	637
45	7	East Fork Terrett Draw a quarter of a mile below Coal Kiln Draw, 8½ miles southwest of Fort McKavett.....	33	Sept. 16, 1936	18,700	567
46	7	West Fork Terrett Draw 1 mile above mouth, 6½ miles southwest of Fort McKavett.....	21	Sept. 16, 1936	5,880	280
47	7	Colston Draw 0.8 mile above mouth, 3½ miles south of Fort McKavett.....	24	Sept. 16, 1936	10,000	417
48	23	Richland Creek near Richland Springs.....	72.4	July 23, 1938	61,000	843
49	23	Bee Water Hole Branch at bridge on Farm to Market Road 501, 6 miles east of Cherokee.....	4.7	Sept. 10, 1952	2,850	606
50	7	West Fork Copperas Creek 3-¾ miles north of Roosevelt.....	81	Sept. 16, 1936	50,400	622
51	7	East Fork James River at old Knoxville.....	60.8	July 1, 1932	105,000	1,730
52	14	Six Mile Creek 5½ miles west of Llano.....	24.5	Sept. 10, 1952	10,500	429
53	14	Johnson Creek at bridge on State Highway 29, near Llano.....	48.5	Sept. 11, 1952	12,200	252
54	14	Pecan Creek at Smathers Ranch, 6 miles northwest of Llano.....	47.7	Sept. 11, 1952	11,900	249
55	14	Oatman Creek 1 mile downstream from State Highway 16, near Llano.....	22.1	Sept. 11, 1952	9,960	451
56	14	Wrights (or Mitchell) Creek 3 miles northeast of Llano.....	14.3	Sept. 11, 1952	6,580	460
57	14	Little Llano River near Lone Grove.....	52.0	Sept. 10, 1952	21,800	419

Table 1.--Peak discharge at miscellaneous sites--Continued

Map No.	Texas Highway District	Stream and place of determination	Drainage area (sq mi)	Peak discharge		
				Date	Cfs	Cfs per sq mi
Colorado River basin--Continued						
58	14	Honey Creek 5 miles west of Kingsland.....	29	Sept.11, 1952	27,600	952
59	14	Hog Branch downstream from State Highway 16, and 12 miles south of Llano.....	5.90	Sept.10, 1952	3,470	588
60	14	Hog Branch tributary at culvert on State Highway 16, and 12 miles south of Llano.....	.4	Sept.10, 1952	482	1,205
61	14	Coal Creek 5 miles northeast of Willow City.....	15.4	Sept.10, 1952	23,800	1,545
62	14	Walnut Creek 0.6 mile upstream from Llano-Round Mountain road crossing, 9.2 miles northwest of Round Mountain.....	19.6	Sept.10, 1952	16,400	837
63	14	Walnut Creek 3½ miles above mouth, 11 miles west of Marble Falls.....	20.9	Sept.15, 1936	13,600	651
64	14	Hamilton Creek 6 miles northeast of Marble Falls.....	67	Sept.15, 1936	29,100	434
65	14	Wolf Creek 3.5 miles upstream from mouth and 10 miles southwest of Fredericksburg.....	33.8	Sept.10, 1952	25,200	746
66	14	Bear Creek 3.2 miles upstream from mouth and 7.9 miles southwest of Fredericksburg.....	30.5	Sept.10, 1952	21,000	689
67	14	Live Oak Creek in Oak Creek Park, 3.4 miles southwest of Fredericksburg.....	46.2	Sept.10, 1952	21,300	461
68	14	Palo Alto Creek 4.5 miles northeast of Fredericksburg.....	36.9	Sept.10, 1952	22,000	596
69	14	South Grape Creek 0.8 mile upstream from U.S. Highway 290, near Stonewall.....	61.0	Sept.10, 1952	30,500	500
70	14	Rocky Creek 0.4 mile downstream from U.S. Highway 290, near Rye	28.1	Sept.11, 1952	38,700	1,380
71	14	North Grape Creek 2.1 miles southwest of Sandy, and 2.3 miles upstream from mouth.....	85.7	Sept.10, 1952	117,000	1,370
72	14	Miller Creek at U.S. Highway 290, 7½ miles southeast of Johnson City.....	51.3	Sept.10, 1952	34,700	676
73	14	Cypress Creek at Cypress Mill.....	52.1	Sept.10, 1952	6,210	119
74	14	Little Barton Creek near Bee Cave.....	6.3	May 28, 1929	2,450	389
75	14	East Branch Waller Creek between Harris and Landon Ave., at Austin.....	2.5	June 12, 1951	659	264
76	14	West Branch Waller Creek between 26th and 26½ Sts., at Austin..	1.3	June 12, 1951	890	685
77	14	Waller Creek 300 ft below 21st St. at Austin.....	4.3	June 12, 1951	2,010	467
78	14	Onion Creek near Dripping Springs.....	54.8	May 28, 1929	21,900	400
79	13	Rabbs Creek near Ward.....	92.8	June 30, 1940	55,000	593
Lavaca River basin						
80	13	Youngs Branch 2 miles east of Moulton.....	6.8	June 30, 1940	8,900	1,310
Guadalupe River basin						
81	15	Bear Creek 2 miles above mouth, Kerr County.....	29.1	July 1, 1932	17,200	590
82	15	South Fork Guadalupe River 8 miles upstream from Hunt.....	60.3	July 1, 1932	84,300	1,400
83	15	Big Joshua Creek 2.5 miles south of Waring.....	17.8	Sept.10, 1952	30,900	1,740
84	15	Little Joshua Creek 1.8 miles southwest of Welfare.....	8.94	Sept.10, 1952	12,800	1,430
85	15	Comal Creek (Blieiders Creek) on Dean Word Ranch, near New Braunfels.....	17.9	Sept.11, 1952	8,480	473
86	15	Dry Comal Creek at New Braunfels.....	94	Sept.11, 1952	35,000	373
87	14	Blanco River 1.8 miles west of Blanco.....	93.5	Sept.11, 1952	61,900	663
88	14	Hines Creek 1.5 miles upstream from mouth and 1.5 miles northwest of Blanco.....	2.92	Sept.10, 1952	5,430	1,860
89	14	Little Blanco River 1.6 miles upstream from U.S. Highway 281 near Twin Sisters.....	21.9	Sept.10, 1952	19,900	910
90	14	Little Blanco River 2.5 miles upstream from mouth, 8.2 miles east of Twin Sisters.....	60.3	Sept.10, 1952	41,000	680
91	14	Bunton Branch downstream from U.S. Highway 81, near Kyle.....	4.12	June 30, 1936	13,800	3,350
92	13	O'Neil Creek near Leesville.....	30	July 1, 1936	30,000	1,000
93	13	Sandies Creek near Dewitt.....	95	July 1, 1936	54,300	572
San Antonio River basin						
94	15	Alazan Creek upstream from Martinez Creek, at San Antonio.....	8.8	Sept.27, 1946	5,900	670
95	15	Martinez Creek at San Antonio.....	6.3	Sept.27, 1946	3,950	628
96	15	Alazan Creek below Martinez Creek in San Antonio.....	17.2	Sept.27, 1946	10,400	605
97	15	Apache Creek at San Antonio.....	21.5	Sept.27, 1946	8,400	390
98	15	San Pedro Creek downstream from State Highway 16, in San Antonio.....	44.5	Sept.27, 1946	22,700	510
99	15	North Fork Medina River near Lima School, 11 miles upstream from mouth.....	54.0	July 1, 1932	40,200	744
100	15	Calaveras Creek near Elmendorf.....	24.6	Sept.27, 1946	58,000	2,360
101	15	Frederick Creek at Boerne.....	16.1	June 1, 1937	16,300	1,010
102	15	Cibolo Creek 0.3 mile upstream from Balcones Creek and 5½ miles southwest of Boerne.....	77.6	Sept.10, 1952	27,900	360
Nueces River basin						
103	22	Hackberry Creek on C. Gilmer Ranch, 8.7 miles east of Rocksprings.....	62	Sept.24, 1955	53,400	862
104	22	East Fork Frio River below mouth of Bybee Creek and 7 miles north of Leakey.....	75	July 1, 1932	89,500	1,200
105	15	Sabinal River near Vanderpool.....	45.7	July 2, 1932	52,300	1,140
106	15	Chacan Creek at Chacan Dam near Natalia.....	30.9	June 22, 1924	2,510	81.2
107	15	Atascosa River at Benton.....	21.3	June 22, 1924	25,900	1,220
Minor Coastal basins						
108	16	Tranquitas Creek (Acero) at Kingsville.....	54.3	Sept.15, 1951	4,790	88.2
109	21	Cibolo Creek at Falfurrias.....	95	Sept.15, 1951	3,460	36.4
Rio Grande basin						
110	6	Cherry Canyon near Toyahvale.....	70.9	Sept.29, 1932	5,320	75.0
111	22	Mailtrail Creek 1 mile upstream from Highway 277 and 5 miles northeast of Loma Alta.....	75.3	June 24, 1948	170,000	2,260
112	22	Little Red Bluff Creek 5.5 miles upstream from confluence with Red Bluff Creek, at Carta Valley.....	10.3	June 24, 1948	30,000	2,910

STATION DATA

PEAK DISCHARGES AT GAGING STATIONS AND PARTIAL-RECORD STATIONS

LISTED BY BASIN AND IN DOWNSTREAM ORDER

STATION DATA

ARKANSAS RIVER BASIN

7-2274.50. Unnamed tributary (watershed W-1) of Middle Alamosa Creek
near Vega, Tex. (4)

Location.--Lat 35°18', long 102°25', 5 miles north of Vega, Oldham County.

Drainage area.--0.202 sq mi.

Gage.--Recording.

Remarks.--Records furnished by U. S. Department of Agriculture, Agricultural Research Service.
Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calen- dar year	Date	Gage height (feet)	Discharge (cfs)	Calen- dar year	Date	Gage height (feet)	Discharge (cfs)
1938	May 30, 1938	-	107	1941	May 20, 1941	-	29
1939	Apr. 5, 1939	-	258	1942	-	-	(a)
1940	May 27, 1940	-	1.3	1943	July 8, 1943	-	139

a Less than 0.1 cfs.

7-2274.55. Unnamed tributary (watershed W-2) of Middle Alamosa Creek
near Vega, Tex. (4)

Location.--Lat 35°20', long 102°25', 6 miles north of Vega, Oldham County.

Drainage area.--0.150 sq mi.

Gage.--Recording.

Remarks.--Records furnished by U. S. Department of Agriculture, Agricultural Research Service.
Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calen- dar year	Date	Gage height (feet)	Discharge (cfs)	Calen- dar year	Date	Gage height (feet)	Discharge (cfs)
1938	May 30, 1938	-	141	1941	Aug. 23, 1941	-	28
1939	July 26, 1939	-	64	1942	Apr. 19, 1942	-	6.8
1940	May 27, 1940	-	15	1943	May 26, 1943	-	12

RED RIVER BASIN

7-2980. North Tule Draw at reservoir, near Tulia, Tex. (7)

Location.--Lat 34°33', long 101°42', at walkway to conduit intake valve, 250 ft to left of concrete spillway, 1 mile upstream from mouth, and 3.2 miles northeast of Tulia, Swisher County.

Drainage area.--About 189 sq mi, of which about 65 sq mi contributes directly to surface runoff.

Gage.--Nonrecording prior to Nov. 26, 1940; recording thereafter. Prior to Sept. 29, 1939, at datum 70.5 ft higher. Altitude of present gage is 3,310 ft (by barometer).

Stage-discharge relation.--Peak inflow is based on change in reservoir contents, flow over spillway (computed from spillway rating curve), and computed flow through conduit.

Remarks.--Dam completed Jan. 15, 1939. Reservoir capacity, 654 acre-ft. No regulation upstream from reservoir. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1941	June 6, 1941	-	985	1954	June 9, 1954	-	4,680
1942	Oct. 4, 1941	-	3,110	1955	May 31, 1955	-	1,390
1943	July 9, 1943	-	1,140	1956	Oct. 2, 1955	-	54
1944	July 11, 1944	-	389	1957	June 18, 1957	-	984
1945	July 5, 1945	-	80	1958	Aug. 1, 1958	-	122
1947	Oct. 5, 1946	-	1,370	1959	July 10, 1959	-	363
1948	Aug. 3, 1948	-	390	1960	July 8, 1960	-	3,010
1949	Apr. 19, 1949	-	1,380	1961	Oct. 12, 1960	-	1,980
1951	May 15, 1951	-	5,430	1962	June 4, 1962	-	63
1952	July 17, 1952	-	38	1963	-	-	(a)
1953	Apr. 5, 1953	-	987				

a Not determined

7-3075. Quitaque Creek near Quitaque, Tex. (25)

Location.--Lat 34°14', long 101°07', on right bank about three-quarters of a mile upstream from W. F. Saul's ranchhouse, 1 mile downstream from Wilson Creek, 1½ miles upstream from Turkey Creek, 10 miles southwest of Quitaque, Briscoe County, and at mile 22.3.

Drainage area.--293 sq mi, of which about 35 sq mi contributes directly to surface runoff.

Gage.--Recording gage and concrete control. Datum of gage is 2,633.91 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 70 cfs and extended on basis of slope-area measurements at gage heights 2.70, 3.00, 5.59, and 8.62 ft.

Bankfull stage.--9 ft.

Remarks.--Base for partial-duration series, 500 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	Sept. 19, 1946	2.77	423	1954	May 10, 1954	4.11	970
1947	May 8, 1947	3.57	720		June 1, 1954	3.61	740
	May 10, 1947	5.59	1,720		Aug. 23, 1954	3.37	680
	May 16, 1947	3.40	660	1955	May 11, 1955	3.75	1,040
1948	Sept. 8, 1948	3.00	520		May 18, 1955	6.15	2,000
1949	May 28, 1949	3.66	785		June 1, 1955	6.47	2,290
	June 7, 1949	3.35	640		June 2, 1955	4.37	1,350
1950	June 11, 1950	3.03	536		June 28, 1955	8.62	4,470
	July 23, 1950	3.20	600	1956	May 27, 1956	3.28	700
	Sept. 4, 1950	5.57	1,700		June 17, 1956	3.01	536
1951	May 17, 1951	3.08	556	1957	May 11, 1957	3.70	900
	Sept. 9, 1951	3.69	780		May 31, 1957	7.50	2,900
1952	July 14, 1952	2.07	152		Aug. 4, 1957	6.33	6,060
1953	Aug. 15, 1953	4.67	1,240	1958	June 23, 1958	2.32	812
				1959	June 5, 1959	2.09	613
					July 6, 1959	2.82	1,220
					July 16, 1959	3.21	1,120

RED RIVER BASIN

7-3326. Bois d'Arc Creek near Randolph, Tex. (1)

Location.--Lat 33°28'30", long 96°12'55", on right bank at downstream side of bridge on Farm Road 1281, 2.3 miles upstream from Henson Creek, and 2.4 miles east of Randolph, Fannin County.

Drainage area.--72 sq mi.

Gage.--Recording. Datum of gage is 564.38 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 1,100 cfs and above by slope-area measurement of 7,700 cfs.

Bankfull stage.--21 ft.

Historical data.--Maximum stage about 24.6 ft occurred about 1935, from information by State Highway Department.

Remarks.--Base for partial-duration series, 1,500 cfs. Rain gage at site.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1963	Apr. 28, 1963	9.85	3,600				

7-3368. Pecan Bayou near Clarksville, Tex. (1)

Location.--Lat 33°41'07", long 94°59'41", on right bank at downstream side of bridge on Farm Road 1159, 0.2 mile downstream from Tanyard Bayou, 4.3 miles upstream from Little White Oak Creek, and 6.0 miles northeast of Clarksville, Red River County.

Drainage area.--100 sq mi.

Gage.--Recording. Datum of gage is 365.00 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--10 ft.

Historical data.--Maximum stage since at least 1910, about 12 ft in 1957, from information by local residents.

Remarks.--Base for partial-duration series, 800 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1962	Jan. 27, 1962	7.00	1,980	1962	May 1, 1962	6.15	940
	Apr. 1, 1962	6.03	851				
	Apr. 29, 1962	6.20	980	1963	Nov. 27, 1962	5.81	706

RED RIVER BASIN

7-3450. Boggy Creek near Daingerfield, Tex.(19)

Location.--Lat 33°02'05", long 94°47'10", on right bank at downstream side of bridge on State Highway 11, a quarter of a mile upstream from Louisiana & Arkansas Railway Co. bridge, 3.8 miles west of Daingerfield, Morris County, 9 miles upstream from mouth, and at mile 11.5.

Drainage area.--72 sq mi.

Gage.--Recording. Prior to Oct. 1, 1954, at site 1,700 ft downstream at present datum. Datum of gage is 258.41 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--10 ft.

Historical data.--The flood in January 1938 is the second highest since at least 1900, from information by local residents.

Remarks.--Base for partial-duration series, 1,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	January 1938	al6	-	1950	Mar. 13, 1950	9.36	1,260
1944	Feb. 29, 1944	9.33	1,240		May 2, 1950	12.10	8,240
	Mar. 19, 1944	9.82	1,880		May 7, 1950	11.83	7,250
	Apr. 9, 1944	9.66	1,620		May 14, 1950	9.23	1,040
	May 2, 1944	12.40	9,650		May 31, 1950	9.57	1,510
	May 27, 1944	9.93	2,080		Sept. 17, 1950	12.97	10,100
				1951	Feb. 16, 1951	9.15	1,160
1945	Dec. 29, 1944	9.91	2,040		Feb. 19, 1951	9.20	1,210
	Feb. 22, 1945	10.68	4,080	1952	Apr. 13, 1952	10.93	4,610
	Feb. 28, 1945	10.25	2,820		Apr. 23, 1952	10.68	3,700
	Mar. 4, 1945	9.85	1,930		May 30, 1952	9.00	1,070
	Mar. 20, 1945	9.60	1,540	1953	Apr. 30, 1953	9.49	1,290
	Mar. 30, 1945	14.10	15,900		May 16, 1953	11.05	4,290
	Apr. 2, 1945	11.10	5,070	1954	May 30, 1954	10.50	3,100
	May 16, 1945	9.18	1,240				
	June 12, 1945	10.82	5,010	1955	Mar. 22, 1955	10.80	2,540
	June 23, 1945	10.15	2,960				
1946	Jan. 10, 1946	9.28	1,000	1956	Feb. 17, 1956	9.13	350
	May 1, 1946	9.55	1,250				
	May 14, 1946	10.50	2,860	1957	Apr. 24, 1957	11.34	2,160
	May 19, 1946	10.20	2,120		Apr. 27, 1957	11.59	2,600
	June 1, 1946	10.22	2,160		June 23, 1957	10.53	1,260
1947	Nov. 7, 1946	9.80	1,540	1958	Nov. 6, 1957	12.09	3,600
	Nov. 11, 1946	9.65	1,360		Nov. 13, 1957	11.88	3,200
	Nov. 27, 1946	9.70	1,420		Jan. 21, 1958	11.13	1,900
1948	Nov. 23, 1947	9.45	1,160		Apr. 27, 1958	17.80	28,900
	Dec. 8, 1947	9.95	1,750		May 1, 1958	13.02	5,750
	Dec. 16, 1947	10.29	2,300		May 4, 1958	10.48	1,220
	Jan. 2, 1948	9.50	1,200	1959	Mar. 6, 1959	10.26	1,030
	Mar. 2, 1948	10.67	3,250				
	Mar. 23, 1948	9.30	1,160	1960	Jan. 14, 1960	11.42	2,160
	Apr. 14, 1948	8.88	1,070				
	May 12, 1948	10.87	3,990				
1949	Jan. 27, 1949	10.48	3,100	1961	Dec. 8, 1960	11.35	2,160
1950					Dec. 11, 1960	11.48	2,400
	Oct. 8, 1949	10.02	2,180		Jan. 8, 1961	10.35	1,050
	Oct. 22, 1949	11.59	6,410	1962	Dec. 17, 1961	10.84	1,550
	Oct. 25, 1949	11.62	6,510		Jan. 27, 1962	10.33	1,030
	Jan. 13, 1950	11.20	5,090		Feb. 27, 1962	11.33	2,160
	Feb. 2, 1950	11.10	4,770		Mar. 11, 1962	10.53	1,230
	Feb. 12, 1950	12.59	10,100				
				1963	Apr. 30, 1963	9.86	696

a Annual peak only.

SABINE RIVER BASIN

8-172. Cowleech Fork Sabine River at Greenville, Tex. (1)

Location.--Lat 33°08'00", long 96°04'35", on right bank at downstream side of bridge on U. S. Highway 67, 0.3 mile downstream from Horse Creek, 0.9 mile downstream from Louisiana and Arkansas Railway Co. bridge, and 1.8 miles south of Greenville, Hunt County.

Drainage area.--77.7 sq mi.

Gage.--Recording. Datum of gage is 485.07 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 3,800 cfs and extended above.

Bankfull stage.--12 ft.

Historical data.--Maximum stage since 1895, 22 ft in May 1935, from information by City Engineer of Greenville.

Remarks.--Base for partial-duration series, 1,000 cfs. Rain gage at site.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1959	-	-	-	1961	Mar. 27, 1961	15.42	1,960
1960	Oct. 4, 1959	15.67	2,480		Mar. 29, 1961	16.00	3,770
	Nov. 4, 1959	15.49	2,000	1962	Nov. 22, 1961	15.43	1,880
	Dec. 16, 1959	16.68	8,820		Dec. 9, 1961	15.40	1,820
	Feb. 3, 1960	15.41	1,840		Dec. 16, 1961	14.99	1,310
	Apr. 30, 1960	15.72	2,640		Mar. 31, 1962	15.11	1,400
	May 6, 1960	14.49	1,050		Apr. 27, 1962	14.90	1,240
	May 26, 1960	14.43	1,020		May 1, 1962	15.35	1,740
	July 15, 1960	15.05	1,400		Sept. 1, 1962	15.10	1,400
1961	Oct. 28, 1960	15.63	2,360		Sept. 7, 1962	15.95	3,540
	Dec. 8, 1960	15.64	2,390	1963	Nov. 27, 1962	15.78	2,850
	Dec. 10, 1960	15.68	2,510		Apr. 29, 1963	15.06	1,360
	Dec. 31, 1960	15.43	1,980		May 7, 1963	14.53	1,020
	Jan. 7, 1961	15.62	2,330		May 28, 1963	16.45	6,730
	Feb. 7, 1961	14.66	1,280		July 15, 1963	15.98	3,680

8-173. South Fork Sabine River near Quinlan, Tex. (1)

Location.--Lat 32°53'52", long 96°15'11", on right bank at downstream side of bridge on Farm Road 1565, 2.4 miles upstream from Dry Creek, 6.2 miles upstream from Bearpen Creek, 7 miles southwest of Quinlan, Hunt County, and 25 miles upstream from mouth.

Drainage area.--78.7 sq mi.

Gage.--Recording. Datum of gage is 461.40 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 5,700 cfs and extended above by contracted-opening measurement of 11,500 cfs.

Bankfull stage.--13 ft.

Historical data.--Maximum stage since at least 1890, 21 ft July 29, 1902, from information by local resident.

Remarks.--Base for partial-duration series, 1,000 cfs. Rain gage at site.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1960	Oct. 1, 1959	16.48	4,800	1961	Dec. 10, 1960	15.05	2,150
	Oct. 4, 1959	15.53	2,820		Dec. 31, 1960	13.84	1,080
	Nov. 4, 1959	14.36	1,480		Jan. 8, 1961	15.21	2,320
	Dec. 15, 1959	15.77	3,200		Feb. 7, 1961	14.52	1,600
	Dec. 31, 1959	14.30	1,440		Mar. 27, 1961	15.65	3,000
	Jan. 5, 1960	15.03	2,150	1962	Nov. 21, 1961	15.14	1,600
	Feb. 3, 1960	14.79	1,900		Dec. 9, 1961	15.22	1,650
	May 6, 1960	13.85	1,080		Dec. 16, 1961	14.62	1,100
1961	Dec. 8, 1960	14.90	2,000		Feb. 26, 1962	14.71	1,170

SABINE RIVER BASIN

Peak stages and discharges of South Fork Sabine River near Quinlan, Tex.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1962	Mar. 31, 1962	14.69	1,170	1962	June 29, 1962	14.70	1,170
	Apr. 11, 1962	14.99	1,450		July 27, 1962	14.95	1,400
	Apr. 24, 1962	14.92	1,350		Sept. 8, 1962	15.29	1,750
	Apr. 28, 1962	15.64	2,280	1963	Oct. 28, 1962	15.21	2,120
	May 1, 1962	14.66	1,140		Nov. 27, 1962	15.77	4,200
	June 27, 1962	15.27	1,700		Apr. 28, 1963	16.70	11,500

8-224. Socagee Creek near Carthage, Tex. (19)

Location.--Lat 32°13'54", long 94°05'31", on right bank at downstream side of bridge on Farm Road 123, 1.4 miles upstream from Salt Creek, 15 miles east of Carthage, Panola County, and 16 miles upstream from mouth.

Drainage area.--82.6 sq mi.

Gage.--Recording. Datum of gage is 228.3 ft above mean sea level (from Texas Highway Department bridge plans).

Stage-discharge relation.--Defined by current-meter measurements below 800 cfs and extended above by logarithmic plotting.

Bankfull stage.--10 ft.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1962	May 2, 1962	10.28	1,820	1963	Apr. 8, 1963	7.07	119

SABINE RIVER BASIN

8- 232. Tenaha Creek near Shelbyville, Tex.(11)

Location.--Lat 31°45'56", long 94°05'02", near center of span at downstream side of bridge on State Highway 87, 1 mile northwest of Shelbyville, Shelby County, 4.2 miles downstream from Gulf, Colorado and Santa Fe Railway Co. bridge, and 5.0 miles upstream from Beauchamp Creek.

Drainage area.--97.8 sq mi.

Gage.--Nonrecording.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--9 ft.

Historical data.--Flood of Nov. 23, 1940, was highest since 1884, from information by local residents.

Remarks.--Base for partial-duration series, 800 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1941	Nov. 23, 1940	15	-	1958	Nov. 23, 1957	9.85	1,440
1952	Mar. 11, 1952	9.70	1,090		Jan. 13, 1958	9.91	1,550
	Apr. 13, 1952	9.79	1,700		Jan. 21, 1958	10.05	1,800
	Apr. 24, 1952	10.10	a2,180		May 4, 1958	10.80	3,360
					June 17, 1958	9.40	880
1953	Mar. 11, 1953	13.85	15,200	1959	Apr. 19, 1959	10.44	2,600
	Mar. 15, 1953	9.80	1,700				
	Apr. 29, 1953	13.63	13,900	1960	Nov. 6, 1959	10.25	1,140
	May 4, 1953	12.42	8,110		Dec. 17, 1959	10.90	2,700
	May 12, 1953	13.00	10,500		Feb. 25, 1960	10.30	1,200
	May 17, 1953	12.00	6,600				
1954	May 12, 1954	10.00	2,020	1961	Nov. 23, 1960	11.30	2,970
1955	Mar. 23, 1955	9.03	889		Dec. 9, 1960	11.57	3,560
	Apr. 10, 1955	9.40	1,090		Jan. 8, 1961	12.20	5,550
	Apr. 13, 1955	10.20	2,340		Jan. 13, 1961	10.17	1,200
					Jan. 25, 1961	10.25	1,300
1956	Apr. 6, 1956	9.39	1,080		Mar. 17, 1961	13.33	10,900
					Mar. 31, 1961	10.00	1,050
1957	Apr. 4, 1957	9.40	880		Sept. 14, 1961	10.54	1,660
	Apr. 25, 1957	10.20	2,500	1962	Dec. 10, 1961	12.30	5,900
	May 1, 1957	10.52	3,040		Dec. 12, 1961	10.88	2,320
	June 3, 1957	9.50	1,030		Dec. 15, 1961	9.80	960
	June 23, 1957	9.80	1,700		Dec. 18, 1961	10.41	1,600
					Apr. 12, 1962	9.75	930
1958	Oct. 23, 1957	9.63	1,110		Apr. 28, 1962	10.38	1,600
	Nov. 8, 1957	11.20	4,240		May 1, 1962	10.46	1,660
	Nov. 18, 1957	9.40	880	1963	Apr. 6, 1963	9.50	760

a Maximum Mar. 6 to Sept. 30; probably maximum for year.

SABINE RIVER BASIN

8-300. Cypress Creek near Buna, Tex. (20)

Location.--Lat 30°25'45", long 93°54'20", near center of span at downstream side of bridge on State Farm Road 253, 1.0 mile downstream from unnamed tributary, 3.2 miles east of Buna, Jasper County, and 10 miles upstream from Little Cypress Creek.

Drainage area.--69.2 sq mi.

Gage.--Nonrecording prior to Oct. 23, 1957; recording thereafter. Datum of gage is 46 ft above mean sea level (State Highway Department bridge plans).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--9 ft.

Remarks.--Base for partial-duration series, 1,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Apr. 23, 1952	11.93	a3,800	1957	June 28, 1957	10.40	1,620
	May 19, 1952	11.12	2,500		Sept. 26, 1957	11.00	2,350
1953	Feb. 24, 1953	10.00	1,220	1958	Nov. 14, 1957	10.48	1,730
	Apr. 30, 1953	11.65	3,320		Nov. 22, 1957	10.40	1,620
	May 19, 1953	11.14	2,560		Feb. 23, 1958	9.95	1,180
1954	Apr. 15, 1954	11.02	2,350		Sept. 22, 1958	10.95	2,420
	May 1, 1954	10.30	1,520	1959	Jan. 30, 1959	10.82	2,080
	May 4, 1954	10.35	1,570		Feb. 2, 1959	10.50	1,730
	May 12, 1954	10.81	2,080		Feb. 25, 1959	9.81	1,100
1955	Feb. 6, 1955	11.13	2,580		Apr. 12, 1959	9.78	1,100
	Apr. 11, 1955	9.90	1,130		July 26, 1959	10.68	1,960
	Apr. 13, 1955	11.95	3,800	1960	Dec. 17, 1959	10.84	2,140
1956	Feb. 4, 1956	9.73	1,020	1961	Dec. 31, 1960	10.77	2,020
1957	Dec. 22, 1956	10.30	1,520		Jan. 8, 1961	11.36	2,880
	Mar. 18, 1957	10.55	1,780		Feb. 18, 1961	11.01	2,350
	May 2, 1957	10.15	1,370		Sept. 14, 1961	10.06	1,210
				1962	Dec. 18, 1961	10.14	1,290
				1963	Sept. 18, 1963	13.28	7,100

a Maximum for Mar. 11 to Sept. 30, 1952; probably maximum for the year.

8-310. Cow Bayou near Mauriceville, Tex. (20)

Location.--Lat 30°11'05", long 93°54'40", near center of span at downstream side of bridge on State Highway 12, half a mile upstream from Kansas City Southern Railway Co. bridge, and 3 miles southwest of Mauriceville, Orange County.

Drainage area.--83.3 sq mi.

Gage.--Nonrecording prior to Oct. 23, 1957; recording thereafter. Datum of gage is 4.7 ft above mean sea level (State Highway Department bridge plans).

Stage-discharge relation.--Defined by current-meter measurements; subject to changes owing to channel shifting and backwater from railroad bridge downstream and from local runoff.

Bankfull stage.--12 ft.

Historical data.--Floods of Feb. 2, 1952, and Sept. 23, 1958, were highest since at least 1940, from information by State Highway Department.

Remarks.--Base for partial-duration series, 900 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Feb. 2, 1952	16.5	-	1958	Feb. 27, 1958	10.78	925
	Apr. 24, 1952	15.16	a3,380		Sept. 23, 1958	16.71	4,300
1953	May 19, 1953	14.15	1,950	1959	Feb. 4, 1959	14.68	2,440
1954	Apr. 19, 1954	8.70	659		Feb. 12, 1959	11.97	1,140
1955	Feb. 9, 1955	10.72	962		Feb. 25, 1959	12.16	1,180
	Apr. 15, 1955	10.70	928		Apr. 12, 1959	12.97	1,390
1956	Feb. 9, 1956	11.20	1,050		July 27, 1959	14.17	1,970
1957	Dec. 24, 1956	b13.80	1,700	1960	Feb. 21, 1960	8.47	617
	Mar. 21, 1957	12.30	1,290	1961	Jan. 2, 1961	13.01	1,370
	May 2, 1957	b12.00	1,160		Jan. 9, 1961	15.56	2,300
	June 30, 1957	12.21	1,260		Feb. 19, 1961	14.63	1,980
1958	Nov. 26, 1957	11.84	1,100		June 19, 1961	11.48	1,040
					July 12, 1961	11.96	1,140
				1962	Dec. 17-20, 1961	10.64	895
				1963	Sept. 19, 1963	18.15	4,600

a Maximum for Mar. 10 to Sept. 30, 1952.

b Occurred on preceding day.

NECHES RIVER BASIN

8-311.45. Unnamed tributary (watershed 3) of Prairie Creek near Tyler, Tex.(10)

Location.--Lat 32°28', long 95°25', 10 miles northwest of Tyler, Smith County.

Drainage area.--0.0124 sq mi.

Gage.--Recording.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1933	July 19, 1933	-	1.3	1938	Jan. 23, 1938	-	3.2
1934	Apr. 5, 1934	-	1.1	1939	Feb. 25, 1939	-	.1
1935	May 5, 1935	-	2.0	1940	Nov. 23, 1940	-	.5
1936	May 9, 1936	-	8.1	1941	June 7, 1941	-	.6
1937	Nov. 15, 1937	-	1.1				

8-311.50. Unnamed tributary (watershed 4) of Prairie Creek near Tyler, Tex.(10)

Location.--Lat 32°28', long 95°25', 10 miles northwest of Tyler, Smith County.

Drainage area.--0.0095 sq mi; 0.0100 sq mi 1931 to Dec. 31, 1932; 0.0087 sq mi Jan. 1, 1933, to March 1939.

Gage.--Recording.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1931	June 16, 1931	-	19	1937	Nov. 15, 1937	-	26
1932	Dec. 23, 1932	-	17	1938	Mar. 28, 1938	-	20
1933	Mar. 30, 1933	-	25	1939	July 9, 1939	-	28
1934	Mar. 25, 1934	-	14	1940	June 28, 1940	-	31
1935	July 3, 1935	-	22	1941	July 11, 1941	-	32
1936	May 1936	-	(a)				

a No record for peak-producing storm of May 1936.

8-311.55. Unnamed tributary (watershed 5) of Prairie Creek near Tyler, Tex.(10)

Location.--Lat 32°28', long 95°25', 10 miles northwest of Tyler, Smith County.

Drainage area.--0.0025 sq mi.

Gage.--Recording.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1933	Mar. 30, 1933	-	3.9	1938	Jan. 23, 1938	-	3.3
1934	Mar. 25, 1934	-	1.4	1939	July 9, 1939	-	1.8
1935	May 3, 1935	-	3.5	1940	June 28, 1940	-	3.4
1936	May 8, 1936	-	11	1941	June 7, 1941	-	3.5
1937	Apr. 20, 1937	-	2.9				

NECHES RIVER BASIN

8-333. Piney Creek near Groveton, Tex. (11)

Location.--Lat 31°08'30", long 95°05'10", on left bank at downstream side of bridge on State Highway 94, 4 miles upstream from Caney Creek, and 6½ miles northeast of Groveton, Trinity County.

Drainage area.--79.0 sq mi.

Gage.--Recording. Datum of gage is 251.40 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--10 ft.

Historical data.--Maximum stage since at least 1921, 17 ft in May 1942, from information by local resident.

Remarks.--Base for partial-duration series, 400 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1962	Dec. 10, 1961	11.07	466	1963	Dec. 29, 1962	10.57	440
	Dec. 18, 1961	10.74	416		Feb. 19, 1963	10.94	480
	Jan. 27, 1962	12.05	655		Apr. 7, 1963	11.42	570
	May 1, 1962	13.20	1,540				

8-375. Arenoso Creek near San Augustine, Tex. (11)

Location.--Lat 31°36', long 94°17', at Camp Worth, ½ mile downstream from Nacogdoches and Southeastern Railroad bridge, 4½ miles upstream from Attoyac Bayou, and 11 miles northwest of San Augustine, San Augustine County.

Drainage area.--75.3 sq mi.

Gage.--Nonrecording.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1939	Feb. 2, 1939	9.94	834	1940	Dec. 23, 1939	12.12	(a)

a Not determined.

8-391. Ayish Bayou near San Augustine, Tex. (11)

Location.--Lat 31°23'46", long 94°09'03", near center of span at downstream side of pier of bridge on State Highway 103, 3.0 miles upstream from Turkey Creek, and 9½ miles south of San Augustine, San Augustine County.

Drainage area.--89.0 sq mi.

Gage.--Recording. Datum of gage is 190.22 ft above mean sea level, datum of 1929. Prior to June 2, 1959, wire-weight gage at same site and datum.

Stage-discharge relation.--Defined by current-meter measurements below 3,500 cfs and extended above by logarithmic plotting.

Bankfull stage.--11 ft.

Remarks.--Base for partial-duration series, 900 cfs. Rain gage at site.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1959	Apr. 18, 1959	14.50	7,750	1961	Feb. 17, 1961	11.93	1,520
	July 26, 1959	13.07	3,200		Mar. 17, 1961	13.95	5,620
1960	Dec. 17 or 18, 1959	12.34	2,020		Mar. 28, 1961	11.18	970
	Feb. 24, 1960	12.77	2,620		Mar. 31, 1961	12.77	2,620
1961				1962	Sept. 13, 1961	12.51	2,250
	Nov. 21, 1960	11.64	1,260		Dec. 10, 1961	13.20	3,200
	Dec. 9, 1960	12.46	2,180		Dec. 18, 1961	12.30	1,700
	Jan. 8, 1961	13.21	3,500	1963	May 1, 1962	12.89	2,900
	Jan. 13, 1961	12.27	1,890		Dec. 29, 1962	11.58	1,220
					Apr. 6, 1963	11.54	1,190

TRINITY RIVER BASIN

8-427. North Creek near Jacksboro, Tex.(2)

Location.--Lat 33°17', long 98°18', on left bank at downstream side of bridge on U.S. Highway 281, 1.5 miles upstream from Henderson Creek, 9.3 miles northwest of Jacksboro, Jack County, and 14 miles upstream from mouth.

Drainage area.--21.6 sq mi.

Gage.--Recording. Datum of gage is 1,016.33 ft above mean sea level (State Highway Department bench mark).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--15 ft.

Historical data.--Flood of Apr. 28, 1957, was the highest since at least 1915, from information by local resident.

Remarks.--Only annual peaks are shown.(1956-60). Base for partial-duration series, 500 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	May 3, 1956	21.58	5,700	1962	Oct. 2, 1961	9.57	731
1957	Apr. 28, 1957	24.45	6,990		June 1, 1962	10.27	941
1958	Nov. 4, 1957	12.56	1,760		June 10, 1962	18.10	4,130
1959	June 26, 1959	14.45	2,500		July 16, 1962	8.92	536
1960	Oct. 3, 1959	19.65	4,830		July 27, 1962	11.13	1,230
					Sept. 7, 1962	10.67	1,060
1961	July 16, 1961	15.23	2,840	1963	Nov. 26, 1962	9.11	593
					Apr. 28, 1963	11.55	1,370

8-485. Marine Creek at Fort Worth, Tex.(2)

Location.--Lat 32°48'16", long 97°21'48", on left bank at downstream side of bridge on Northwest 33d Street in Fort Worth, Tarrant County, 1.5 miles upstream from North Main Street, 2.2 miles upstream from St. Louis Southwestern Railway bridge, and 2.4 miles upstream from mouth.

Drainage area.--16.8 sq mi.

Gage.--Recording. Datum of gage is 562.60 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 2,700 cfs and by slope-area measurement at 24,400 cfs.

Historical data.--Flood of Apr. 20, 1942, is the highest since at least 1907. Large floods also occurred in 1908 and 1922 (stages not known), from information by local resident.

Remarks.--Flow from 3.7 sq mi partly regulated after Feb. 7, 1957, by Cement Creek Reservoir (total capacity, 3,950 acre-ft). Flow from 9.8 sq mi regulated by fixed outlet after Apr. 17, 1958, at Marine Creek Reservoir (total capacity, 15,370 acre-ft). Base for partial-duration series, 230 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1942	Apr. 20, 1942	16.1	24,400	1956	Apr. 14, 1956	2.63	438
					May 1, 1956	3.40	1,060
1950	Sept. 19, 1950	1.48	a51	1957	Apr. 19, 1957	2.65	242
1951	June 16, 1951	2.29	266		Apr. 20, 1957	4.30	1,610
					Apr. 23, 1957	3.50	756
1952	Apr. 22, 1952	1.38	37		Apr. 26, 1957	4.81	2,420
					May 13, 1957	3.38	660
1953	Apr. 23, 1953	2.37	305		May 24, 1957	5.47	4,300
	Apr. 28, 1953	2.31	275		May 25, 1957	5.55	4,600
1954	Oct. 23, 1953	2.84	572		May 30, 1957	3.37	1,620
	Oct. 25, 1953	2.34	290		June 2, 1957	4.24	2,610
					June 5, 1957	3.58	1,880
1955	June 16, 1955	2.48	350	1958	Apr. 26, 1958	1.65	310
	June 18, 1955	2.25	242		May 3, 1958	1.90	460

a Maximum during period July 5 to Sept. 30, 1950; may have been exceeded during period of no record.

TRINITY RIVER BASIN

8-488. Big Fossil Creek at Haltom City, Tex. (2)

Location---Lat 32°48'26", long 97°14'54", on right bank at downstream side of bridge on State Highways 121 and 183, 1.5 miles upstream from Chicago, Rock Island and Pacific Railroad Co. bridge, 2.0 miles upstream from Little Fossil Creek, 3.5 miles upstream from mouth, and near east boundary of Haltom City, Tarrant County.

Drainage area---52.8 sq mi.

Gage---Recording. Datum of gage 491.48 ft above mean sea level, datum of 1929.

Stage-discharge relation---Defined by current-meter measurements below 16,500 cfs and above by contracted-opening measurement of 27,000 cfs.

Bankfull stage---13 ft.

Historical data---Flood of Sept. 7, 1962, reached the highest stage since at least 1900.

Remarks---Base for partial-duration series, 700 cfs. Rain gage at site.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1960	Oct. 1, 1959	20.71	12,600	1962	July 27, 1962	18.68	5,410
	Oct. 4, 1959	14.44	2,160		Aug. 2, 1962	19.13	6,180
	Apr. 24, 1960	17.75	5,170		Sept. 5, 1962	9.38	750
	May 6, 1960	12.94	1,560		Sept. 7, 1962	24.90	27,000
1961	June 25, 1961	23.06	18,300	1963	Nov. 27, 1962	11.53	1,220

8-497. Walnut Creek near Mansfield, Tex. (2)

Location---Lat 32°34'50", long 97°06'05", on right bank at downstream side of bridge on county road, 2.6 miles northeast of Mansfield, Tarrant County, 3 miles downstream from Texas and New Orleans Railroad Co. bridge, and 9 miles upstream from mouth.

Drainage area---62.8 sq mi.

Gage---Recording. Datum of gage is 531.08 ft above mean sea level, datum of 1929.

Stage-discharge relation---Defined by current-meter measurements.

Bankfull stage---24 ft.

Historical data---Maximum stage since at least 1900 occurred May 25, 1922, stage unknown.

Remarks---Base for partial-duration series, 700 cfs. Rain gage at site.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1961	Jan. 8, 1961	17.20	1,350	1962	Sept. 8, 1962	18.77	1,790
	June 25, 1961	26.32	5,550				
				1963	Apr. 28, 1963	19.69	2,060
					Aug. 13, 1963	15.32	960

8-502. Elm Fork Trinity River subwatershed 6-0 near Muenster, Tex. (3)

Location---Lat 33°37'13", long 97°24'15", near center of earth-fill dam on unnamed tributary of Elm Fork Trinity River, 1.0 mile west of Farm Road 373 and 2.6 miles southwest of Muenster, Cooke County.

Drainage area---0.77 sq mi.

Gage---Recording. Datum of gage is 941.75 ft above mean sea level, datum of 1929 (U. S. Soil Conservation Service bench mark).

Remarks---Peak discharge based on maximum inflow (average for 5 to 15-minute intervals), computed from outflow and change in reservoir contents, adjusted for rainfall on the reservoir surface during time of peak inflow. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1957	June 1, 1957	-	449	1961	Mar. 25, 1961	-	51
1958	May 1, 1958	-	688	1962	June 18, 1962	-	287
1959	Nov. 16, 1958	-	34	1963	Nov. 26, 1962	-	221
1960	Oct. 3, 1959	-	842				

TRINITY RIVER BASIN

8-503. Elm Fork Trinity River near Muenster, Tex. (3)

Location.--Lat 33°36'37", long 97°22'58", on left bank 40 ft upstream from bridge on Farm Road 373, 2.5 miles south of Muenster, Cooke County, 2.5 miles downstream from Long Branch, and 6.5 miles upstream from Brushy Elm Creek.

Drainage area.--46.0 sq mi.

Gage.--Recording. Datum of gage is 889.33 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 1,300 cfs and above by slope-area measurement at 16.65 ft (3,440 cfs).

Bankfull stage.--16 ft.

Historical data.--Maximum stage since at least 1900, about 23 ft, from information by local resident.

Remarks.--Flow from 31.0 sq mi above this station partly controlled by 11 floodwater-retarding structures. Maximum outflow during period about 250 cfs. Only annual peaks are shown. Rain gage at site.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1957	Apr. 26, 1957	15.20	3,480	1961	Mar. 25, 1961	7.40	710
1958	May 1, 1958	20.20	5,900	1962	Sept. 7, 1962	10.45	1,310
1959	June 23, 1959	3.95	33	1963	Nov. 26, 1962	10.26	1,260
1960	Oct. 3, 1959	16.70	4,160				

8-527. Little Elm Creek near Aubrey, Tex. (18)

Location.--Lat 33°17'00", long 96°53'33", on left bank at downstream side of bridge on Farm Road 1385, 1 mile upstream from Mustang Creek, and 5.5 miles east of Aubrey, Denton County.

Drainage area.--75.5 sq mi.

Gage.--Recording. Datum of gage is 534.76 ft above mean sea level (State Highway Department bench mark).

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--13 ft.

Historical data.--Maximum stage known since about 1900, 18.2 ft in May 1941, from information by local residents.

Remarks.--Base for partial-duration series, 1,000 cfs. Nine rain gages are in the basin above this station.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1957	Apr. 1, 1957	14.70	1,680	1960	Oct. 4, 1959	14.84	1,650
	Apr. 20, 1957	15.77	3,300		Nov. 4, 1959	15.10	1,930
	Apr. 21, 1957	14.28	1,480		Dec. 16, 1959	14.43	1,310
	Apr. 23, 1957	15.83	3,520	1961	Jan. 8, 1961	14.60	1,440
	Apr. 26, 1957	17.34	7,830				
	May 4, 1957	15.24	2,420	1962	Apr. 24, 1962	14.87	1,680
	May 13, 1957	16.87	6,080		Apr. 28, 1962	14.31	1,240
	May 18, 1957	13.73	1,200		July 1, 1962	14.57	1,420
	May 22, 1957	14.22	1,420		Sept. 6, 1962	16.48	5,030
	May 23, 1957	16.40	4,830		Sept. 8, 1962	15.23	2,120
	May 25, 1957	16.57	5,220				
1958	Nov. 5, 1957	15.55	2,900	1963	Nov. 27, 1962	14.45	1,440
	May 1, 1958	16.26	4,460		Apr. 29, 1963	15.01	1,820
1959	July 17, 1959	11.29	451		May 31, 1963	15.17	2,030

TRINITY RIVER BASIN

8-565. Turtle Creek at Dallas, Tex.(18)

Location.--Lat 32°48'26", long 96°48'08", on left bank 68 ft upstream from Hall Street Dam, 210 ft upstream from Hall Street at Dallas, Dallas County, and 2.0 miles north of Dallas County courthouse.

Drainage area.--7.98 sq mi.

Gage.--Recording. Datum of gage is 428.13 ft above mean sea level, unadjusted.

Stage-discharge relation.--Defined by current-meter measurements below 1,200 cfs and extended above on basis of weir formula, $Q = 3.3 L (H)^{3/2}$.

Bankfull stage.--4.5 ft.

Historical data.--Flood of Oct. 1, 1959, reached the highest stage since at least 1903.

Remarks.--Base for partial-duration series, 880 cfs. The creek basin is in a highly-developed urban area.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	Aug. 27, 1947	a6.8	3,350	1957	Nov. 2 or 3, 1956	3.58	940
1948	May 11, 1948	4.68	1,630		Mar. 17, 1957	3.58	910
1949	Jan. 24, 1949	5.46	2,220		Apr. 24, 1957	5.79	2,460
	Feb. 23, 1949	4.23	1,330		Apr. 26, 1957	7.30	3,850
	May 18, 1949	6.15	2,800		May 1, 1957	4.14	1,270
	May 27, 1949	6.15	2,800		May 12, 1957	7.14	3,650
	June 13, 1949	5.50	2,220		May 23, 1957	5.40	2,140
					May 25, 1957	4.07	1,210
1950	Oct. 24, 1949	4.85	1,740	1958	Oct. 15, 1957	3.62	940
	Feb. 1, 1950	4.40	1,420		Mar. 29, 1958	4.99	1,840
	Feb. 12, 1950	3.72	1,000		Apr. 26, 1958	6.54	3,070
	Apr. 29, 1950	3.80	1,060		Apr. 29, 1958	4.00	1,180
	May 1, 1950	5.29	2,060		May 2, 1958	5.09	1,910
	May 13, 1950	4.03	1,210	1959	Feb. 14, 1959	4.47	1,460
1951	Sept. 12, 1951	4.82	1,700		Sept. 28, 1959	3.58	940
1952	Apr. 21, 1952	5.23	1,980	1960	Oct. 1, 1959	8.10	4,650
	Apr. 22, 1952	4.37	1,390		Oct. 4, 1959	6.78	3,350
	May 17, 1952	5.47	2,220		Nov. 3, 1959	4.47	1,460
	July 18, 1952	3.65	970	1961	Oct. 13, 1960	4.08	1,240
1953	Apr. 23, 1953	3.54	910	1962	Nov. 22, 1961	4.94	1,640
1954	Apr. 11, 1954	5.17	1,980		Apr. 30, 1962	6.65	3,050
	Apr. 12, 1954	6.40	2,980		July 27, 1962	7.96	4,640
	Apr. 30, 1954	3.89	1,120		Aug. 24, 1962	4.12	b1,010
	May 10, 1954	3.48	880		Sept. 7, 1962	4.90	b1,690
	May 12, 1954	3.80	1,060	1963	Oct. 8, 1962	b6.76	3,450
	June 15, 1954	4.18	1,270		Nov. 26, 1962	b6.03	2,740
1955	June 18, 1955	3.44	852		Apr. 27, 1963	4.98	1,660
1956	Apr. 29, 1956	3.80	1,060		Apr. 28, 1963	7.77	4,290
	May 1, 1956	4.84	1,740		June 16, 1963	4.35	1,160
					June 30, 1963	4.20	1,040
					July 14, 1963	4.18	1,030

a Annual peak only.

b Stage-discharge relation indefinite.

TRINITY RIVER BASIN

8-571. White Rock Creek at Keller Springs Rd., Dallas, Tex. (18)

Location.--Lat 32°58'13", long 96°48'19", 20 ft left of left abutment of bridge on Keller Springs Rd., 0.5 mile upstream from St. Louis and Southwestern Railroad Co. bridge, 0.9 mile upstream from Spanky Branch, and 13.0 miles north of City Hall of Dallas, Dallas County.

Drainage area.--29.4 sq mi.

Gage.--Recording. Datum of gage is mean sea level, datum of 1929, supplementary adjustment of 1953.

Stage-discharge relation.--Defined by current-meter measurements below 5,400 cfs and above by contracted-opening measurement of 38,000 cfs.

Bankfull stage.--562 ft.

Historical data.--Historical flood data begins in 1886. The highest stage of 569.6 ft, occurred Apr. 19, 1942, from information by local resident (flood Sept. 21, 1964 reached a stage of 574.51 ft).

Remarks.--Base for partial-duration series, 1,500 cfs. Three recording rain gages are in the basin upstream from this station.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1962	June 27, 1962	558.43	3,550	1963	Oct. 8, 1962	555.46	2,360
	June 29, 1962	560.73	4,560		Oct. 28, 1962	556.11	2,620
	July 27, 1962	565.88	9,410				

8-571.2 Spanky Branch at McCallum Lane, Dallas, Tex. (18)

Location.--Lat 32°57'58", long 96°48'11", at downstream side of bridge on McCallum Lane, 0.2 mile upstream from State Highway 289, 0.5 mile upstream from mouth, and 12.7 miles north of City Hall of Dallas, Dallas County.

Drainage area.--6.77 sq mi.

Gage.--Crest-stage gage. Datum of gage is mean sea level, datum of 1929, supplementary adjustment of 1953.

Stage-discharge relation.--Defined by current-meter measurements below 365 cfs and above by indirect measurements.

Bankfull stage.--565 ft.

Historical data.--Maximum stage since at least 1917 occurred Apr. 19, 1942 (flood of Sept. 21, 1964 exceeded Apr. 19, 1942. Stage 572.0, discharge 7,820 cfs).

Remarks.--Base for partial-duration series, 600 cfs. Two recording rain gages are in the basin upstream from the station.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1962	July 27, 1962	567.03	4,020	1963	Oct. 8, 1962	564.61	3,000
	Sept. 7, 1962	559.23	1,400		Oct. 28, 1962	558.98	1,320

8-571.4 Cottonwood Creek at Forest Lane, Dallas, Tex. (18)

Location.--Lat 32°54'33", long 96°45'54", at downstream side of bridge on Forest Lane, 0.2 mile east of U. S. Highway 75 (Central Expressway), 0.2 mile upstream from Floyd Branch, 0.7 mile upstream from mouth, and 8.9 miles northeast of City Hall of Dallas, Dallas County.

Drainage area.--8.50 sq mi.

Gage.--Crest-stage gage. Flood hydrograph recorder installed in 1963. Datum of gage is mean sea level, datum of 1929, supplementary adjustment of 1953.

Stage-discharge relation.--Defined by current-meter measurements below 328 cfs and above by indirect measurements.

Bankfull stage.--507 ft.

Historical data.--Maximum stage since at least 1892, 512.5 ft on June 13, 1949, at upstream side of bridge. Information from local residents and records at the county engineer's office.

Remarks.--Base for partial-record series, 370 cfs. There are 2 recording-rain gages in the basin upstream from the station.

TRINITY RIVER BASIN

Peak stages and discharges of Cottonwood Creek at Forest Lane, Dallas, Tex.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1962	Nov. 22, 1961	503.55	870	1963	Oct. 8, 1962	511.74	17,400
	June 29, 1962	502.96	780		Oct. 28, 1962	501.90	635
	July 27, 1962	509.90	5,090		Apr. 28, 1963	500.56	485
	Sept. 7, 1962	502.37	585				

8-571.6 Floyd Branch at Forest Lane, Dallas, Tex. (18)

Location.--Lat 32°54'33", long 96°45'34", at downstream side of bridge on Forest Lane, 0.3 mile upstream from mouth, 0.5 mile east of U. S. Highway 75 (Central Expressway), and 9.0 miles northeast of City Hall of Dallas, Dallas County.

Drainage area.--4.17 sq mi.

Gage.--Crest-stage gage. Datum of gage is mean sea level, datum of 1929, supplementary adjustment of 1953.

Stage-discharge relation.--Defined by current-meter measurements below 135 cfs and above by indirect measurements.

Bankfull stage.--508 ft.

Historical data.--Maximum stage since at least 1909, 513.7 ft on June 13, 1949, from information by local residents.

Remarks.--Base for partial-record series, 1,300 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1962	June 29, 1962	505.66	2,000	1963	Oct. 8, 1962	512.63	4,850
	July 27, 1962	509.62	3,200				

8-572. White Rock Creek at Greenville Ave., Dallas, Tex. (18)

Location.--Lat 32°53'21", long 96°45'23", on left bank, 20 ft downstream from bridge on Greenville Ave., 1.1 miles downstream from Texas and New Orleans Railroad, 1.2 miles downstream from Cottonwood Creek, 2.9 miles upstream from White Rock Lake, and 7.7 miles northeast of City Hall of Dallas, Dallas County.

Drainage area.--66.4 sq mi.

Gage.--Recording. Datum of gage is mean sea level, datum of 1929, supplementary adjustment of 1953.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--483 ft.

Historical data.--Historical flood data begins in 1886. The highest stage of 490.1 ft occurred Apr. 19, 1942 (flood of Sept. 21, 1964 reached a stage of 490.4 ft).

Remarks.--Base for partial-duration series, 2,900 cfs. Twelve recording-rain gages are in the basin upstream from the station.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1962	Nov. 22, 1961	483.42	2,960	1963	Oct. 8, 1962	489.23	24,500
	June 29, 1962	487.43	7,980		Oct. 28, 1962	487.40	6,900
	July 27, 1962	488.80	2,000		Apr. 28, 1963	485.64	3,980
	Sept. 8, 1962	486.49	5,000				

TRINITY RIVER BASIN

8-573.2 Ash Creek at Highland Road, Dallas, Tex. (18)

Location.--Lat 32°48'18", long 96°43'04", on downstream side of bridge on Highland Road, 0.4 mile upstream from White Rock Creek, in Dallas, Dallas County.

Drainage area.--6.92 sq mi.

Gage.--Crest-stage gage. Flood hydrograph recorder installed in 1963. Datum of gage is mean sea level, datum of 1929, supplementary adjustment of 1961.

Stage-discharge relation.--Not defined.

Bankfull stage.--429 ft.

Historical data.--Historical data are limited. Channel rectification has altered flow conditions. Maximum stage since channel work, 433.4 ft, Apr. 26, 1957, from Dallas Public Works Department.

Remarks.--Base for partial-duration series, 427.31 ft.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1963	Apr. 28, 1963	430.99	-				

8-573.4 Forney Creek at Lawnview Ave., Dallas, Tex. (18)

Location.--Lat 32°46'45", long 96°40'45", at downstream side of culvert on Lawnview Ave., 0.8 mile upstream from White Rock Creek, in Dallas, Dallas County.

Drainage area.--1.84 sq mi.

Gage.--Crest-stage gage. Datum of gage is mean sea level, datum of 1929, supplementary adjustment of 1953.

Stage-discharge relation.--Not defined.

Bankfull stage.--432 ft.

Historical data.--Flood history is scarce. From data furnished by employees of Dallas Department of Public Works, it is indicated that stages in excess of 435 ft occurred Apr. 19, 1942 and June 13, 1949.

Remarks.--Base for partial-duration series, 429.01 ft.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1963	Apr. 28, 1963	431.36	-				

TRINITY RIVER BASIN

8-575. Honey Creek subwatershed No. 11 near McKinney, Tex. (18)

Location.--Lat 33°18'10", long 96°41'30", near center of dam on unnamed tributary of Honey Creek, 1.5 miles west of Farm Road 543 and 8.4 miles northwest of McKinney, Collin County.

Drainage area.--2.14 sq mi.

Gage.--Recording. Datum of gage is 629.00 ft above mean sea level, datum of 1929.

Remarks.--Peak discharge based on maximum inflow (average for 15-minute interval), computed from outflow and change in reservoir contents, adjusted for rainfall on the reservoir surface during time of peak inflow. Base for partial-duration series, 200 cfs. Only annual peaks shown beginning in 1960.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	May 15, 1953	-	a268	1957	May 18, 1957	-	383
1954	Apr. 30, 1954	-	221		May 21, 1957	-	1,630
	June 8, 1954	-	235		May 22, 1957	-	423
	June 15, 1954	-	224		May 23, 1957	-	999
					May 25, 1957	-	1,080
1955	Feb. 19, 1955	-	b42		May 26, 1957	-	1,550
1956	Feb. 17, 1956	-	264	1958	Apr. 29, 1958	-	572
	May 1, 1956	-	256		Apr. 30, 1958	-	718
1957	Mar. 31, 1957	-	308		May 1, 1958	-	1,880
	Apr. 19, 1957	-	551		May 3, 1958	-	217
	Apr. 21, 1957	-	487	1959	July 24, 1959	-	156
	Apr. 23, 1957	-	383				
	Apr. 24, 1957	-	469	1960	Aug. 26, 1960	-	320
	Apr. 26, 1957	-	695	1961	May 1, 1961	-	1,320
	May 3, 1957	-	418				
	May 12, 1957	-	385	1962	Apr. 27, 1962	-	169
	May 13, 1957	-	1,000				
				1963	May 30, 1963	-	546

a No rainfall record for adjusting maximum inflow. b Average for 30-minute interval.

8-580. Honey Creek subwatershed No. 12 near McKinney, Tex.(18)

Location.--Lat 33°18'20", long 96°40'15", near center of dam on unnamed tributary of Honey Creek, 0.5 mile west of Farm Road 543 and 7.8 miles northwest of McKinney, Collin County.

Drainage area.--1.26 sq mi.

Gage.--Recording. Datum of gage is 623.00 ft above mean sea level, datum of 1929.

Remarks.--Peak discharge based on maximum inflow (average for 15-minute interval), computed from outflow and change in reservoir contents, adjusted for rainfall on the reservoir surface during time of peak inflow. Base for partial-duration series, 150 cfs. Only annual peaks shown beginning in 1960.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	Apr. 28, 1953	-	a423	1957	May 21, 1957	-	1,490
	May 15, 1953	-	a194		May 22, 1957	-	340
1954	June 8, 1954	-	196		May 23, 1957	-	891
	June 15, 1954	-	212		May 25, 1957	-	1,110
					May 26, 1957	-	1,420
1955	Oct. 23, 1954	-	b123	1958	Apr. 29, 1958	-	1,170
1956	Feb. 17, 1956	-	b295		Apr. 30, 1958	-	744
					May 1, 1958	-	1,410
1957	Apr. 19, 1957	-	824		May 3, 1958	-	190
	Apr. 21, 1957	-	247	1959	July 24, 1959	-	(c)
	Apr. 23, 1957	-	544				
	Apr. 24, 1957	-	581	1960	June 8, 1960	-	286
	Apr. 25, 1957	-	296	1961	May 1, 1961	-	589
	Apr. 26, 1957	-	674				
	May 3, 1957	-	406	1962	Apr. 24, 1962	-	158
	May 13, 1957	-	523				
	May 16, 1957	-	176	1963	May 30, 1963	-	663
	May 18, 1957	-	422				

a No rainfall records for adjusting maximum inflow. b Average for 30-minute interval.
c Not determined.

TRINITY RIVER BASIN

8-585. Honey Creek near McKinney, Tex.(18)

Location.--Lat 33°17', long 96°39', on right bank at downstream side of bridge, 4.5 miles downstream from Haw Branch, 5.6 miles upstream from mouth, and 6.0 miles northwest of McKinney, Collin County.

Drainage area.--39.0 sq mi.

Gage.--Recording. Datum of gage is 563.68 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 4,620 cfs.

Bankfull stage.--14 ft.

Historical data.--Flood in 1950 (probably June) reached highest stage since at least 1930, from information by local resident.

Remarks.--Between 1951 and July 1957, 12 floodwater-retarding structures were built. These structures have a total floodwater-detention capacity of 8,320 acre-ft below the flood spillway crests and partly control the flow from 20.9 sq mi above the station. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	June 1950	23.0	-	1956	May 1, 1956	14.27	1,410
1951	Aug. 23, 1951	21.55	8.8	1957	May 26, 1957	20.29	7,920
1952	Apr. 22, 1952	16.65	2,500	1958	May 2, 1958	18.70	4,580
1953	May 15, 1953	16.65	2,540	1959	June 23, 1959	7.76	384
1954	May 12, 1954	16.66	2,510	1960	Nov. 4, 1959	11.81	982
1955	Feb. 19, 1955	15.74	2,050	1961	May 1, 1961	13.10	1,280
				1962	Sept. 6, 1962	13.52	1,390
				1963	May 30, 1963	17.08	2,920

a Maximum for period July to September 1951; probably exceeded during period of no record.

Note.--Peak discharge for May 26, 1957 includes undetermined amount of flow over emergency spillways of floodwater-retarding structures. Other peak discharges given since 1957 include up to about 150 cfs of combined service spillway discharge.

TRINITY RIVER BASIN

8-616.45. Unnamed tributary (watershed WI) of Duck Creek
near Garland, Tex. (18)

Location.--Lat 32°50', long 96°37', 5.6 miles south of Garland, Dallas County.

Drainage area.--0.0391 sq mi.

Gage.--Recording.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1939	June 19, 1939	-	1.0	1943	June 6, 1943	-	42
1940	Apr. 6, 1940	-	9.6	1944	May 1, 1944	-	5.0
				1945	Mar. 30, 1945	-	32
1941	June 13, 1941	-	6.6				
1942	Apr. 20, 1942	-	29	1946	May 29, 1946	-	51

8-616.5. Unnamed tributary (watershed WIII) of Duck Creek
near Garland, Tex. (18)

Location.--Lat 32°50', long 96°37', 5.1 miles south of Garland, Dallas County.

Drainage area.--0.0162 sq mi.

Gage.--Recording.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1939	Mar. 29, 1939	-	0.3	1943	June 6, 1943	-	36
1940	Dec. 31, 1940	-	20	1944	May 1, 1944	-	7.2
				1945	Mar. 29, 1945	-	25
1941	Apr. 22, 1941	-	15				
1942	Apr. 20, 1942	-	41	1946	May 29, 1946	-	45

8-616.55. Unnamed tributary (watershed WIV) of Duck Creek
near Garland, Tex. (18)

Location.--Lat 32°50', long 96°37', 5.8 miles south of Garland, Dallas County.

Drainage area.--0.0253 sq mi.

Gage.--Recording.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1939	Apr. 16, 1939	-	19	1944	May 30, 1944	-	37
				1945	June 12, 1945	-	49
1940	May 17, 1940	-	44				
1941	Oct. 1, 1941	-	21	1946	May 29, 1946	-	121
1942	May 19, 1942	-	57				

TRINITY RIVER BASIN

8-617. Duck Creek near Garland, Tex. (18)

Location.--Lat 32°50'00", long 96°35'45", on right bank at downstream side of bridge on Belt Line Road, 6.0 miles southeast of Garland, Dallas County.

Drainage area.--31.6 sq mi.

Gage.--Recording. Datum of gage is 430.02 ft above mean sea level, datum of 1929, adjustment of 1954. Prior to Oct. 1, 1962, at datum 4.00 ft higher.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--12 ft.

Historical data.--Maximum stage since about 1895, 21.5 ft, present datum, June 13, 1949, from information by local residents.

Remarks.--Base for partial-duration series, 1,000 cfs. Rain gage at site.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1958	Mar. 29, 1958	12.95	4,060	1961	Jan. 8, 1961	11.08	1,580
	Apr. 26, 1958	14.12	7,400		Mar. 17, 1961	10.38	1,160
	Apr. 29, 1958	11.77	2,140		June 25, 1961	11.79	2,080
	Apr. 30, 1958	11.63	2,030				
	May 2, 1958	12.40	3,040	1962	Nov. 22, 1961	11.52	1,760
1959	Feb. 14, 1959	11.93	2,380		Dec. 9, 1961	10.64	1,090
					Apr. 23, 1962	10.54	1,030
1960	Oct. 1, 1959	13.00	4,160		Apr. 27, 1962	11.44	1,670
	Oct. 4, 1959	13.30	4,820		Apr. 30, 1962	11.97	2,300
	Nov. 4, 1959	11.62	1,980		June 29, 1962	13.56	5,620
	Dec. 15, 1959	10.84	1,420		July 27, 1962	16.80	16,000
	Jan. 5, 1960	10.76	1,360		Sept. 8, 1962	12.87	3,730
	Aug. 21, 1960	10.70	1,330				
				1963	Oct. 8, 1962	18.65	8,600
1961	Dec. 10, 1960	10.24	1,070		Oct. 28, 1962	15.03	1,350
					Nov. 26, 1962	17.18	4,480
					Apr. 28, 1963	18.20	7,400

8-632. Pin Oak Creek near Hubbard, Tex. (9)

Location.--Lat 31°48'05", long 96°43'10", on right bank 85 ft downstream from bridge on State Highway 171, 5.8 miles southeast of Hubbard, Hill County.

Drainage area.--17.6 sq mi.

Gage.--Recording. Datum of gage is 463.08 ft above mean sea level, datum of 1929, supplementary adjustment of 1942.

Stage-discharge relation.--Defined by current-meter measurements below 2,900 cfs.

Bankfull stage.--15 ft.

Historical data.--Maximum stage since at least 1900, about 17 ft in August 1919, from information by local resident.

Remarks.--Base for partial-duration series, 800 cfs. Flood-retarding structures partially controlling 7.29 sq mi above this station were built during 1963. Six rain gages are operated in the basin above this station.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1958	May 3, 1958	10.35	1,140	1961	Dec. 8, 1960	11.19	1,590
	Aug. 24, 1958	13.86	4,340		Jan. 8, 1961	10.75	1,340
1959	May 11, 1959	11.38	1,720		Jan. 12, 1961	10.40	1,160
	June 24, 1959	13.73	4,100		Feb. 5, 1961	10.30	1,120
					Feb. 16, 1961	10.48	1,200
1960	Oct. 4, 1959	11.52	1,810		June 17, 1961	9.93	959
	Dec. 15, 1959	10.29	1,120		June 18, 1961	11.60	1,870
1961	Oct. 18, 1960	10.37	1,150	1962	Nov. 22, 1961	10.80	1,360
	Dec. 7, 1960	10.10	1,030		Apr. 27, 1962	12.42	2,580
				1963	Apr. 28, 1963	4.52	89

SAN JACINTO RIVER BASIN

8-745. Whiteoak Bayou at Houston, Tex.(12)

Location.--Lat 29°46'31", long 95°23'54", near right bank at downstream side of pier of Yale Street Bridge, in Houston, Harris County, 80 ft downstream from Texas and New Orleans Railroad Co. bridge, 2.5 miles upstream from Little Whiteoak Bayou, and 4.1 miles upstream from mouth.

Drainage area.--84.7 sq mi. During extreme floods when capacity of drainage ditches is exceeded, the drainage area is defined by natural ridge lines and is 92.0 sq mi.

Gage.--Recording. Datum of gage is 4.08 ft below mean sea level, datum of 1929, unadjusted for ground surface subsidence resulting from heavy ground-water withdrawals.

Stage-discharge relation.--Defined by current-meter measurements.

Historical data.--Flood of Dec. 9, 1935, was highest since at least 1919, information from local resident. Second highest flood occurred May 31, 1929, from information furnished by engineer for Harris County. The drainage area of Whiteoak Bayou is roughly parallel to that of Buffalo Bayou and records indicate that when there is a major flood on Buffalo Bayou there is a major flood on Whiteoak Bayou (see station 8-740).

Remarks.--Base for partial-duration series, 1,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1929	May 31, 1929	47.0	a9,360	1946	Sept. 27, 1946	27.34	1,010
1936	Dec. 9, 1935	51.5	b14,750	1947	Nov. 6, 1946	37.33	4,120
1937	July 23, 1937	29.35	887		Nov. 11, 1946	32.88	2,520
1938	Dec. 16, 1937	29.56	1,040		Nov. 17, 1946	26.95	1,100
	Feb. 19, 1938	30.60	1,240		Jan. 18, 1947	28.62	1,430
	May 7, 1938	37.98	3,570		May 24, 1947	28.24	1,180
1939	July 13, 1939	33.40	1,980	1948	Dec. 13, 1947	24.12	534
1940	June 11, 1940	27.20	632	1949	Feb. 26, 1949	28.28	1,270
1941	Nov. 25, 1940	37.00	3,220		Apr. 23, 1949	31.35	1,920
	Dec. 14, 1940	31.17	1,390	1950	Oct. 4, 1949	27.07	1,050
	Jan. 15, 1941	30.38	1,210		Oct. 8, 1949	37.65	3,650
	Mar. 20, 1941	36.37	2,950		Dec. 18, 1949	29.09	1,420
	Apr. 24, 1941	34.70	2,350		Jan. 1, 1950	32.58	2,480
	June 11, 1941	39.02	4,300		Feb. 13, 1950	29.47	1,500
	Sept. 17, 1941	31.94	1,560		June 6, 1950	27.16	1,060
	Sept. 24, 1941	40.27	5,100	1951	Mar. 27, 1951	24.99	714
1942	Nov. 1, 1941	35.70	2,680	1952	Feb. 1, 1952	25.79	835
	July 6, 1942	36.98	4,400	1953	Dec. 4, 1952	26.76	1,000
1943	Dec. 28, 1942	27.47	1,010		May 4, 1953	26.77	1,000
	July 29, 1943	36.38	3,660		May 15, 1953	29.55	1,520
1944	Nov. 2, 1943	42.45	8,600		May 18, 1953	31.38	1,920
	Jun. 2, 1944	29.97	1,520		Aug. 30, 1953	27.35	1,040
	Jan. 14, 1944	30.73	1,700	1954	Nov. 18, 1953	27.27	1,090
	Mar. 16, 1944	32.67	2,460		July 31, 1954	36.80	3,890
	Mar. 19, 1944	32.20	2,240	1955	Feb. 6, 1955	29.05	1,690
	May 23, 1944	28.87	1,300	1956	Jan. 22, 1956	27.28	1,300
	May 29, 1944	32.50	2,240		July 10, 1956	27.31	1,320
1945	Nov. 25, 1944	31.55	1,960	1957	Mar. 17, 1957	35.43	3,060
	Dec. 6, 1944	30.02	1,560		Apr. 28, 1957	35.18	2,990
	Jan. 19, 1945	33.08	2,380		Sept. 25, 1957	28.44	1,290
	Apr. 2, 1945	31.87	2,040	1958	Oct. 15, 1957	40.58	5,320
	June 14, 1945	30.13	1,580		Nov. 22, 1957	26.81	1,000
	Aug. 28, 1945	38.80	4,330		Jan. 20, 1958	30.83	1,780
1946	Dec. 3, 1945	29.34	1,410		June 19, 1958	29.20	1,440
	Dec. 23, 1945	29.48	1,450		Sept. 21, 1958	27.88	1,200
	Jan. 6, 1946	28.50	1,240	1959	Feb. 2, 1959	33.09	23.80
	Feb. 19, 1946	28.26	1,200		Feb. 16, 1959	(c)	-
	May 20, 1946	37.13	3,660		Apr. 10, 1959	32.24	2,210
	May 26, 1946	29.59	1,470		May 23, 1959	35.33	3,030
	June 1, 1946	33.98	2,630				
	June 8, 1946	27.80	1,100				

a Annual peak only; computed on basis of current-meter measurement at stage 1 ft below crest, furnished by city of Houston.

b Annual peak only, furnished by engineer for Harris County.

c Peak above the base, stage and discharge unknown.

SAN JACINTO RIVER BASIN

Peak stages and discharges of Whiteoak Bayou at Houston, Tex.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1959	July 25, 1959	30.05	1,600	1961	Jan. 7, 1961	27.27	1,060
	Aug. 26, 1959	39.18	4,510		Feb. 5, 1961	29.44	1,530
	Sept. 22, 1959	33.72	2,550		Feb. 17, 1961	39.45	7,380
1960	Oct. 13, 1959	27.35	1,040		Feb. 21, 1961	31.80	2,240
	Oct. 31, 1959	28.27	1,290		June 19, 1961	36.33	4,180
	Nov. 1, 1959	32.92	2,460		June 25, 1961	29.20	1,480
	Dec. 15, 1959	31.82	2,320		July 12, 1961	35.49	3,700
	Dec. 31, 1959	28.22	1,260		Sept. 12, 1961	40.37	5,700
	Feb. 3, 1960	27.45	1,060	1962	Nov. 13, 1961	43.60	9,000
	Feb. 21, 1960	27.22	1,020		Dec. 11, 1961	28.72	1,360
	June 26, 1960	40.58	4,380		Apr. 27, 1962	28.22	1,240
	July 20, 1960	30.08	1,800		May 1, 1962	31.90	2,270
					June 4, 1962	38.28	5,000
1961	Oct. 5, 1960	29.80	1,640		June 30, 1962	27.58	1,120
	Oct. 19, 1960	32.92	2,570	1963	Nov. 27, 1962	38.48	5,020
	Oct. 29, 1960	31.50	2,150		Dec. 24, 1962	27.60	1,120
	Nov. 18, 1960	33.62	2,840		Jan. 18, 1963	30.38	1,820
	Dec. 9, 1960	30.60	1,880		Feb. 18, 1963	30.40	1,820
	Dec. 31, 1960	29.62	1,590		June 25, 1963	29.55	1,590

8-750. Brays Bayou at Houston, Tex. (12)

Location.--Lat 29°41'49", long 95°23'43", at bridge on Main Street, in Houston, Harris County, 1.6 miles upstream from Harris Gully, and 11.6 miles upstream from Buffalo Bayou.

Drainage area.--89.1 sq mi prior to Nov. 26, 1959; 88.4 sq mi thereafter. During extreme floods when capacity of drainage ditches is exceeded, the drainage area is defined by natural ridge lines and is 100 sq mi.

Gage.--Recording. At site 0.8 mile upstream at same datum after Nov. 26, 1959. Datum of gage is 3.90 ft below mean sea level, datum of 1929, unadjusted for ground surface subsidence resulting from heavy ground-water withdrawals.

Stage-discharge relation.--Defined by current-meter measurements. Relation affected by channel improvements of July 1923 to January 1926, flood control work on bayou at various times between 1936 and 1956, and channel lining project that began in 1956 and was still incomplete at the end of the 1960 water year.

Historical data.--Flood in June 1919 was maximum since at least 1911, from information by engineer for city of Houston.

Remarks.--Partial urbanization of the drainage basin as well as channel improvements have changed flood characteristics in recent years. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1919	June 1919	56.0	-	1951	Mar. 28, 1951	34.58	786
1922	March 1922	55.3	-	1952	Feb. 1, 1952	38.79	1,850
				1953	May 18, 1953	42.72	3,580
1924	Dec. 23, 1923	53.0	-	1954	Nov. 18, 1953	43.20	3,680
				1955	Feb. 4, 1955	42.38	3,300
1929	May 31, 1929	50.4	all, 100	1956	May 2, 1956	36.38	1,180
1936	May 25, 1936	47.0	b6,600	1957	Mar. 17, 1957	43.65	4,660
1937	Dec. 10, 1936	34.88	1,270	1958	Oct. 15, 1957	47.48	5,100
1938	May 17, 1938	43.27	4,530	1959	Apr. 9, 1959	43.80	7,760
1939	July 12, 1939	48.02	6,800	1960	June 26, 1960	49.72	12,600
1940	Feb. 17, 1940	36.73	1,340	1961	Sept. 11, 1961	41.62	6,320
1941	Sept. 24, 1941	47.62	6,460	1962	Nov. 13, 1961	43.00	7,720
1942	Oct. 31, 1941	44.58	4,590		May 1, 1962	36.73	3,700
1943	July 29, 1943	48.22	6,280		June 4, 1962	42.28	7,230
1944	Nov. 2, 1943	50.60	8,120	1963	Nov. 27, 1962	36.92	4,180
1945	Aug. 28, 1945	51.70	5,590		Jan. 17, 1963	40.30	8,300
1946	Sept. 27, 1946	48.24	3,880		June 22, 1963	33.55	3,220
1947	Nov. 5, 1946	46.25	4,360		June 25, 1963	35.98	4,740
1948	Dec. 13, 1947	38.44	1,440				
1949	Feb. 26, 1949	42.60	2,340				
1950	Oct. 8, 1949	51.49	5,340				

a From current-meter measurement at Lawndale Avenue Bridge 8 miles downstream, furnished by city of Houston. There may have been considerable inflow between gage site and Lawndale Ave.

b Maximum for period May 25 to Sept. 30, 1936; may have been exceeded during period of no record.

c Occurred at different time than peak discharge.

SAN JACINTO RIVER BASIN

8-755. Sims Bayou at Houston, Tex.(12)

Location.--Lat 29°40'27", long 95°17'21", on left bank at downstream side of bridge on State Highway 35, in southeast section of Houston, Harris County, 5.6 miles upstream from mouth.

Drainage area.--64.0 sq mi.

Gage.--Recording. Datum of gage is 0.61 ft below mean sea level, datum of 1929, adjustment of 1957.

Stage-discharge relation.--Defined by current-meter measurements. Channel was rectified January 1957.

Bankfull stage.--25 ft.

Remarks.--Base for partial-duration series, 850 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	Dec. 22, 1952	15.75	900	1959	May 23, 1959	17.27	1,880
	Jan. 22, 1953	15.05	-		July 25, 1959	23.91	3,860
	Feb. 1, 1953	14.88	-		Aug. 23, 1959	12.95	880
	Feb. 24, 1953	15.07	-		Aug. 26, 1959	21.17	3,010
	May 18, 1953	21.35	2,270		Sept. 24, 1959	15.70	1,480
	Aug. 30, 1953	19.82	1,800	1960	Oct. 14, 1959	13.91	1,060
1954	Nov. 19, 1953	18.30	1,410		Oct. 31, 1959	16.50	1,680
	Dec. 20, 1953	17.05	1,100		Dec. 16, 1959	18.82	2,290
1955	Feb. 6, 1955	21.14	2,730		Dec. 31, 1959	14.14	1,100
					Feb. 21, 1960	13.34	940
1956	Jan. 31, 1956	13.62	478		June 26, 1960	29.76	8,030
					Aug. 24, 1960	16.80	1,750
1957	Mar. 17, 1957	22.12	4,540	1961	Oct. 19, 1960	14.86	1,000
	Mar. 28, 1957	10.24	-		Oct. 29, 1960	15.90	1,200
	Apr. 29, 1957	18.00	2,830		Dec. 8, 1960	15.29	1,080
1958	Oct. 15, 1957	23.22	5,050		Dec. 14, 1960	16.81	1,380
	Nov. 13, 1957	12.42	1,070		Dec. 31, 1960	18.70	1,830
	Nov. 23, 1957	13.9	1,420		Jan. 7, 1961	19.36	2,030
	Jan. 20, 1958	14.48	1,610		Feb. 6, 1961	17.37	1,510
	Jan. 23, 1958	12.05	851		Feb. 17, 1961	14.55	948
	Feb. 23, 1958	12.9	1,120		June 19, 1961	24.28	3,960
	July 2, 1958	12.90	1,120		July 10, 1961	20.15	2,230
	Sept. 21, 1958	18.90	3,180		July 12, 1961	20.82	2,440
1959	Feb. 2, 1959	20.51	3,370	1962	Sept. 12, 1961	28.62	3,220
	Feb. 11, 1959	14.11	1,300		Nov. 13, 1961	23.78	3,700
	Feb. 14, 1959	15.67	1,780	1963	June 4, 1962	20.55	1,920
	Feb. 24, 1959	17.92	2,530		Nov. 27, 1962	19.80	1,680
	Apr. 10, 1959	23.40	3,690		Dec. 24, 1962	18.40	1,330
					Jan. 17, 1963	22.56	2,690

a Backwater from tides caused by hurricane Carla.

8-760. Greens Bayou near Houston, Tex.(12)

Location.--Lat 29°55'05", long 95°18'24", on right bank at downstream side of bridge on U.S. Highway 59, 10.5 miles northeast of Houston, Harris County, and 12.0 miles upstream from Halls Bayou.

Drainage area.--72.7 sq mi.

Gage.--Recording. At site 100 ft upstream prior to Oct. 9, 1958. Datum of gage is 0.66 ft below mean sea level, datum of 1929, adjustment of 1957.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--60 ft.

Remarks.--Channel was rectified prior to installation of gage. Base for partial-duration series, 700 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	May 3, 1953	54.65	1,090	1955	Feb. 4, 1955	56.94	1,740
	May 13, 1953	55.79	1,430				
	May 15, 1953	55.54	1,340	1956	Oct. 6, 1955	53.31	748
	May 18, 1953	61.38	3,280		Aug. 27, 1956	57.09	1,400
1954	July 30, 1954	64.75	7,000	1957	Mar. 17, 1957	59.03	1,840

SAN JACINTO RIVER BASIN

Peak stages and discharges of Greens Bayou near Houston, Tex.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1957	Apr. 29, 1957	55.29	860	1961	Oct. 19, 1960	58.94	1,100
	Sept. 26, 1957	57.82	1,490		Oct. 29, 1960	58.67	1,060
1958	Oct. 16, 1957	62.82	3,410	Nov. 18, 1960	61.35	1,700	
	Nov. 22, 1957	55.85	974	Dec. 9, 1960	59.53	1,560	
	Jan. 20, 1958	59.67	2,060	Dec. 31, 1960	56.65	900	
					Jan. 7, 1961	56.46	880
1959	Feb. 2, 1959	57.84	1,110	Feb. 17, 1961	64.09	4,240	
	Apr. 9, 1959	56.98	930	Feb. 21, 1961	58.67	1,360	
	Apr. 12, 1959	58.97	1,430	June 19, 1961	61.10	2,080	
	May 11, 1959	58.05	1,160	July 12, 1961	63.25	3,420	
	May 23, 1959	61.32	2,380	Sept. 12, 1961	65.75	6,120	
	July 25, 1959	59.71	1,660	1962	Nov. 13, 1961	63.18	3,120
	Aug. 27, 1959	60.82	2,090		Dec. 11, 1961	56.89	757
					July 1, 1962	57.09	703
1960	Oct. 14, 1959	58.47	1,290	1963	Nov. 27, 1962	63.47	3,000
	Dec. 16, 1959	60.67	1,520		Feb. 18, 1963	58.58	1,040
	June 26, 27, 1960	63.92	2,530				

8-765. Halls Bayou at Houston, Tex. (12)

Location.--Lat 29°51'42", long 95°20'05", on right bank at downstream side of bridge on Jensen Drive (formerly U.S. Highway 59), in northeast section of Houston, Harris County, 11.0 miles upstream from mouth.

Drainage area.--24.7 sq mi.

Gage.--Recording. Datum of gage is 0.66 ft below mean sea level, datum of 1929, adjustment of 1957.

Stage-discharge relation.--Defined by current-meter measurements below 2,100 cfs. Channel was rectified prior to installation of gage. It was rectified again in June 1956, lowering channel about 2 ft.

Bankfull stage.--58 ft.

Remarks.--Base for partial-duration series, 300 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)	
1953	Dec. 4, 1952	52.74	446	1959	July 20, 1959	53.20	742	
	Dec. 30, 1952	51.65	310		July 25, 1959	57.61	1,810	
	May 4, 1953	52.98	610		Aug. 26, 1959	56.52	1,480	
	May 13, 1953	53.42	690	1960	Oct. 14, 1959	52.17	588	
	May 15, 1953	54.38	910		Dec. 15, 1959	52.84	678	
	May 18, 1953	59.05	2,410		Dec. 31, 1959	49.77	318	
1954	Nov. 18, 1953	53.05	610		June 26, 1960	58.79	2,230	
	Jan. 10, 1954	51.98	430		July 20, 1960	53.22	742	
	Jan. 14, 1954	51.35	343	1961	Oct. 19, 1960	51.41	594	
	July 30, 1954	60.65	2,020		Oct. 29, 1960	52.63	850	
1955	Jan. 18, 1955	51.95	430		Nov. 18, 1960	53.90	1,200	
	Feb. 6, 1955	56.62	1,530		Nov. 20, 1960	49.75	340	
	Aug. 8, 1955	55.23	1,120		Dec. 9, 1960	53.45	1,100	
1956	Jan. 22, 1956	51.53	357		Dec. 14, 1960	49.35	300	
					Dec. 31, 1960	51.77	682	
1957	Mar. 17, 1957	52.14	572		Jan. 7, 1961	51.83	682	
	Apr. 29, 1957	52.51	620		Jan. 12, 1961	49.81	352	
	Sept. 25, 1957	50.81	426		Feb. 5, 1961	51.17	562	
1958	Oct. 15, 1957	57.09	1,280		Feb. 17, 1961	56.88	2,370	
					Feb. 21, 1961	51.48	610	
	Nov. 22, 1957	51.73	525		June 12, 1961	49.68	310	
	Jan. 20, 1958	53.43	732		June 19, 1961	57.48	2,050	
	Jan. 23, 1958	49.55	324		July 3, 1961	52.96	790	
	Feb. 22, 1958	50.03	344		July 9, 1961	52.88	772	
1959	Sept. 20, 1958	-	a560		July 12, 1961	58.29	2,370	
	Feb. 2, 1959	56.04	1,340		July 17, 1961	49.63	300	
	Feb. 11, 1959	50.36	378		Sept. 12, 1961	60.50	3,400	
	Feb. 15, 1959	(b)	-	1962	Nov. 13, 1961	58.28	2,540	
	Feb. 25, 1959	(b)	-		Dec. 11, 1961	52.57	772	
	Apr. 11, 1959	54.27	950		May 1, 1962	52.75	754	
	May 11, 1959	54.86	1,080		June 4, 1962	53.58	912	
	May 23, 1959	58.10	1,980	1963	Nov. 27, 1962	57.02	1,870	
	July 6, 1959	51.71	524		Jan. 17, 1963	51.95	610	
					Feb. 18, 1963	52.65	718	

a Estimated.

b Peak above base; stage and discharge unknown.

CLEAR CREEK BASIN

8-770. Clear Creek near Pearland, Tex.(12)

Location.--Lat 29°35'50", long 95°17'12", at bridge on State Highway 35, 0.7 mile downstream from Gulf, Colorado and Santa Fe Railway bridge, 1.2 miles upstream from Hickory Slough, 2.3 miles north of Pearland, Brazoria County, and about 30 miles upstream from Clear Lake.

Drainage area.--38.4 sq mi, planimetered by Harris County Flood Control District from survey by Corps of Engineers in 1943. Drainage area not applicable for low flows: a large area of rice land above station is irrigated with water from the Brazos River; also, drainage ditches and canals used by irrigators are changed at times, thereby changing the drainage area.

Gage.--Nonrecording prior to June 9, 1948; recording thereafter. At datum 5.80 ft higher prior to Apr. 23, 1952. Datum of gage is 29.29 ft above mean sea level, datum of 1929, adjustment of 1957.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--14 ft.

Historical data.--Flood information begins in February 1932, when flood reached a stage of 17.8 ft, present datum; from information by State Highway Department. U.S. Weather Bureau records indicate that the rainfall during the tropical storm of August 1945 was greater than that of February 1932. State Highway information is that the water did not flow over the road (elevation, about 20.0 ft, present datum).

Remarks.--Because of channel rectification in 1952, there is no relation between flood peaks prior to April 1952 and subsequent flood peaks. Base for partial-duration series, 600 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1932	February 1932	a17.8	-	1953	May 18, 1953	10.06	866
1944b/	Sept. 28, 1944	10.0	710		Aug. 31, 1953	11.51	1,130
1946c/	May 19, 1946	9.9	700	1954	Nov. 18, 1953	9.19	717
	June 1, 1946	9.97	710	1955	Feb. 6, 1955	14.00	1,350
	June 9, 1946	10.3	740	1956	May 2, 1956	8.26	469
	Sept. 28, 1946	11.4	880	1957	Mar. 18, 1957	16.80	2,170
1947d/	Aug. 25, 1947	10.10	710		Apr. 29, 1957	14.09	1,370
1948	Feb. 24, 1948	7.94	551	1958	Oct. 16, 1957	17.16	1,640
1949	Nov. 16, 1948	10.77	759		Sept. 21, 1958	13.24	952
	Feb. 26, 1949	9.98	665	1959	Feb. 2, 1959	16.45	1,490
	Apr. 22, 1949	10.04	665		Feb. 11, 1959	11.79	747
	July 16, 1949	9.56	625		Feb. 15, 1959	11.30	679
1950	Oct. 5, 1949	12.24	1,280		Feb. 24, 1959	15.10	1,270
	Oct. 8, 1949	13.18	1,840		Apr. 11, 1959	14.47	1,160
	Dec. 18, 1949	11.28	855		May 23, 1959	11.75	747
	Jan. 2, 1950	11.60	975		July 25, 1959	16.70	1,550
	Feb. 13, 1950	9.84	649		Aug. 27, 1959	16.15	1,460
	June 6, 1950	10.12	678	1960e/	Oct. 31, 1959	14.02	1,080
1951	Sept. 14, 1951	5.59	267		Dec. 16, 1959	13.85	1,050
1952	July 17, 1952	7.86	673				

a Present datum.

b Period July 28 to Sept. 30, 1944.

c Period Mar. 4 to Sept. 30, 1946.

d Periods October 1946, April to September 1947.

e Period Oct. 1 to Dec. 31, 1959.

CHOCOLATE BAYOU BASIN

8-780. Chocolate Bayou near Alvin, Tex.(12)

Location.--Lat 29°22'10", long 95°19'20", on right bank 800 ft downstream from bridge on Farm Road 1462 and 5.9 miles southwest of Alvin, Brazoria County.

Drainage area.--88.1 sq mi.

Gage.--Nonrecording prior to June 12, 1952; recording thereafter, except non-recording Feb. 10, 1958, to May 3, 1959. At sites 1,360, 1,400, and 900 ft upstream on old channel at datum 3.00 ft higher prior to May 4, 1959. Datum of gage is 10.31 ft above mean sea level, datum of 1929, Houston supplementary adjustment of 1943.

Stage-discharge relation.--Defined by current-meter measurements below 3,300 cfs and extended above by logarithmic plotting. Relationship affected by channel rectification in summer of 1955 and in October 1957.

Bankfull stage.--15 ft.

Historical data.--Flood of July 14, 1939, was highest known in recent years, from information by local residents. U.S. Weather Bureau records show very heavy rains in the area in October 1913 and August 1915.

Remarks.--Records prior to Jan. 14, 1947, are for low flow only. Base for partial-duration series, 800 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1939	July 14, 1939	19.9	-	1957	Mar. 18, 1957	17.10	4,280
1946	May 22, 1946	(a)	-		Mar. 21, 1957	11.56	1,270
	June 3, 1946	b15.72	1,190		Apr. 30, 1957	12.97	1,580
	June 10, 1946	(a)	-		June 3, 1957	9.15	878
	July 7, 1946	(a)	-		June 7, 1957	11.28	1,210
	Sept. 30, 1946	(a)	-	1958	Oct. 16, 1957	13.25	4,100
1947	Nov. 8, 1946	(a)	-		Nov. 14, 1957	6.18	906
	Nov. 18, 1946	(a)	-		Nov. 23, 1957	10.12	1,830
	Nov. 30, 1946	(a)	-		Jan. 20, 1958	7.33	990
	Aug. 26, 1947	15.86	1,210		Jan. 24, 1958	7.50	1,040
1948	Feb. 25, 1948	14.76	1,080	1959	Feb. 25, 1959	15.14	2,130
1949	Feb. 27, 1949	12.96	980		May 23, 1959	9.12	848
	Apr. 23, 1949	12.99	980		July 26, 1959	18.88	2,770
1950	Oct. 8, 1949	18.80	7,400		Aug. 27, 1959	19.03	3,370
	Dec. 12, 1949	11.97	846	1960	Nov. 1, 1959	17.72	2,850
	Dec. 18, 1949	16.60	2,520		Dec. 16, 1959	13.81	1,820
	Jan. 12, 1950	12.10	863		Jan. 1, 1960	8.90	812
	Feb. 14, 1950	15.76	1,700		Feb. 22, 1960	11.57	1,330
1951	Sept. 14, 1951	12.66	935		June 27, 1960	18.46	2,920
1952	Apr. 1, 1952	16.33	2,250	1961	Dec. 9, 1960	10.05	938
	Apr. 23, 1952	16.30	2,200		Dec. 15, 1960	11.88	1,290
	May 29, 1952	16.25	2,150		Dec. 29, 1960	12.37	1,390
1953	May 19, 1953	15.94	1,860		Jan. 1, 1961	13.82	1,750
	June 30, 1953	13.15	1,010		Jan. 8, 1961	15.84	2,300
	Aug. 31, 1953	16.69	2,660		Feb. 6, 1961	10.38	992
1954	Nov. 19, 1953	16.93	3,010		June 19, 1961	20.10	3,970
	Dec. 21, 1953	11.75	863		July 12, 1961	19.60	3,510
1955	Feb. 7, 1955	15.97	1,860		Sept. 13, 1961	19.46	3,460
1956	May 2, 1956	3.72	247	1962	Nov. 14, 1961	18.88	3,050
				1963	Nov. 27, 1962	11.98	1,090
					Dec. 3, 1962	10.07	806
					Dec. 24, 1962	14.38	1,810
					Dec. 29, 1962	9.60	888
					June 21, 1963	11.61	1,030
					June 26, 1963	10.78	906

a Peak above the base of 800 cfs probably occurred.

b Maximum for period Mar. 5 to Sept. 30, 1946; may have been exceeded during period of no record.

BRAZOS RIVER BASIN

8-809.33. Unnamed tributary (watershed 1) of Duck Creek
near Spur, Tex.(25)

Location.--Lat 33°28', long 100°53', 1 mile west of Spur, Dickens County.

Drainage area.--0.0180 sq mi.

Gage.--Recording.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1927	June 1, 1927	-	4.5	1937	Aug. 24, 1937	-	7.1
1928	Aug. 4, 1928	-	5.7	1938	June 25, 1938	-	2.9
1929	Sept. 8, 1929	-	14	1939	Oct. 8, 1939	-	1.0
1930	Aug. 7, 1930	-	2.4	1940	Nov. 24, 1940	-	3.1
1931	May 25, 1931	-	.3	1941	Sept. 17, 1941	-	10
1932	June 20, 1932	-	13	1942	June 14, 1942	-	-
1933	Aug. 2, 1933	-	1.5	1943	July 3, 1943	-	8.0
1934	Sept. 15, 1934	-	2.8	1944	June 25, 1944	-	1.7
1935	June 7, 1935	-	7.6	1945	July 10, 1945	-	4.9
1936	Sept. 20, 1936	-	-				

8-809.35. Unnamed tributary (watershed 2) of Duck Creek near Spur, Tex.(25)

Location.--Lat 33°28', long 100°53', 1 mile west of Spur, Dickens County.

Drainage area.--0.0147 sq mi.

Gage.--Recording.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1927	June 1, 1927	-	1.6	1937	Aug. 24, 1937	-	9.4
1928	May 18, 1928	-	3.7	1938	July 21, 1938	-	8.5
1929	Sept. 8, 1929	-	6.2	1939	Oct. 8, 1939	-	1.9
1930	Aug. 7, 1930	-	2.2	1940	Aug. 17, 1940	-	4.3
1931	May 25, 1931	-	1.8	1941	June 15, 1941	-	9.9
1932	June 20, 1932	-	-				
1933	Aug. 2, 1933	-	2.9	1943	July 3, 1943	-	9.4
1934	Sept. 15, 1934	-	4.6	1944	June 25, 1944	-	6.2
1935	May 17, 1935	-	5.1	1945	June 4, 1945	-	9.9
1936	Sept. 20, 1936	-	13				

8-809.37. Unnamed tributary (watershed 3) of Duck Creek near Spur, Tex.(25)

Location.--Lat 33°28', long 100°53', 1 mile west of Spur, Dickens County.

Drainage area.--0.0183 sq mi.

Gage.--Recording.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1927	June 1, 1927	-	2.7	1937	Aug. 24, 1937	-	6.6
1928	May 18, 1928	-	5.1	1938	July 22, 1938	-	6.8
1929	Sept. 8, 1929	-	11	1939	Oct. 8, 1939	-	.8
1930	Dec. 4, 1930	-	1.5	1940	Nov. 25, 1940	-	.4
1931	May 25, 1931	-	.6	1941	Sept. 17, 1941	-	5.9
1932	June 20, 1932	-	8.5	1942	Sept. 19, 1942,	-	(a)
1933	May 24, 1933	-	.7		Oct. 17, 1942	-	
1934	Sept. 15, 1934	-	-	1943	July 3, 1943	-	.8
1935	May 17, 1935	-	4.4	1944	June 25, 1944	-	(a)
1936	Sept. 20, 1936	-	13				

a Less than 0.1 cfs.

BRAZOS RIVER BASIN

8-809.39. Unnamed tributary (watershed 5) of Duck Creek near Spur, Tex.(25)
Location.--Lat 33°28', long 100°53', 1 mile west of Spur, Dickens County.

Drainage area.--0.0091 sq mi; 0.0086 sq mi prior to Jan. 1, 1936.

Gage.--Recording.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calen- dar year	Date	Gage height (feet)	Discharge (cfs)	Calen- dar year	Date	Gage height (feet)	Discharge (cfs)
1927	June 1, 1927	-	4.0	1936	Sept. 20, 1936	-	8.7
1928	Aug. 4, 1928	-	5.6	1937	Aug. 24, 1937	-	4.0
1929	Sept. 9, 1929	-	12	1938	July 22, 1938	-	2.7
1930	Aug. 7, 1930	-	3.2	1939	Oct. 8, 1939	-	.1
				1940	Aug. 17, 1940	-	2.0
1931	May 25, 1931	-	2.2				
1932	June 20, 1932	-	11	1941	Sept. 17, 1941	-	5.1
1933	June 24, 1933	-	3.1	1942	Sept. 19, 1942	-	2.2
1934	Sept. 15, 1934	-	8.0	1943	July 3, 1943	-	5.0
1935	May 17, 1935	-	5.8	1944	June 25, 1944	-	2.0

8-809.41. Unnamed tributary (watershed 6) of Duck Creek
near Spur, Tex. (25)

Location.--Lat 33°28', long 100°53', 1 mile west of Spur, Dickens County.

Drainage area.--0.0083 sq mi; 0.0094 sq mi prior to spring 1936.

Gage.--Recording.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calen- dar year	Date	Gage height (feet)	Discharge (cfs)	Calen- dar year	Date	Gage height (feet)	Discharge (cfs)
1927	June 1, 1927	-	0.5	1937	Aug. 21, 1937	-	6.3
1928	May 18, 1928	-	.9	1938	July 22, 1938	-	8.0
	Aug. 4, 1928	-		1939	Oct. 8, 1939	-	1.4
1929	Sept. 8, 1929	-	1.8	1940	Aug. 17, 1940	-	6.8
1930	Dec. 4, 1930	-	.7				
				1941	Apr. 29, 1941	-	6.4
1931	June 29, 1931	-	.1	1942	June 15, 1942	-	2.7
				1943	July 3, 1943	-	-
1933	Aug. 2, 1933	-	.2	1944	June 25, 1944	-	5.2
1934	-	-	0	1945	June 4, 1945	-	6.2
1935	June 23, 1935	-	1.8				

8-809.43. Unnamed tributary (watershed 11) of Duck Creek
near Spur, Tex. (25)

Location.--Lat 33°28', long 100°53', 1 mile west of Spur, Dickens County.

Drainage area.--0.0136 sq mi.

Gage.--Recording.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calen- dar year	Date	Gage height (feet)	Discharge (cfs)	Calen- dar year	Date	Gage height (feet)	Discharge (cfs)
1931	May 25, 1931	-	0.4	1939	Oct. 8, 1939	-	0.4
1932	June 20, 1932	-	5.6	1940	Aug. 17, 1940	-	1.3
1933	July 6, 1933	-	.1				
1934	Sept. 15, 1934	-	2.2	1941	Apr. 29, 1941	-	3.9
1935	May 17, 1935	-	2.3	1942	Sept. 19, 1942	-	1.7
				1943	July 3, 1943	-	5.0
1936	Sept. 20, 1936	-	7.2	1944	June 25, 1944	-	2.1
1937	Aug. 21, 1937	-	2.0	1945	June 4, 1945	-	2.8
1938	July 21, 1938	-	1.9				

BRAZOS RIVER BASIN

8-809.45. Unnamed tributary (watershed 12) of Duck Creek
near Spur, Tex. (25)

Location.--Lat 33°28', long 100°53', 1 mile west of Spur, Dickens County.

Drainage area.--0.0131 sq mi.

Gage.--Recording.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calen- dar year	Date	Gage height (feet)	Discharge (cfs)	Calen- dar year	Date	Gage height (feet)	Discharge (cfs)
1930	-	-	0	1937	Aug. 21, 1937	-	-
1931	-	-	0	1938	-	-	0
1932	-	-	0	1939	Oct. 8, 1939	-	(a)
1933	-	-	0	1940	Nov. 24, 1940	-	.2
1934	Sept.15, 1934	-	-	1941	Sept.18, 1941	-	1.4
1935	May 17, 1935	-	-	1942	June 14, 1942	-	.4
1936	Sept.20, 1936	-	2.5	1943	July 3, 1943	-	2.7
				1944	June 25, 1944	-	(a)

a Less than 0.1 cfs.

8-809.47. Unnamed tributary (watershed 14) of Duck Creek
near Spur, Tex. (25)

Location.--Lat 33°28', long 100°53', 1 mile west of Spur, Dickens County.

Drainage area.--0.0133 sq mi.

Gage.--Recording.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calen- dar year	Date	Gage height (feet)	Discharge (cfs)	Calen- dar year	Date	Gage height (feet)	Discharge (cfs)
1930	Dec. 4, 1930	-	0.4	1937	Aug. 24, 1937	-	2.8
1931	May 25, 1931	-	1.1	1938	June 4, 1938	-	2.0
1932	June 20, 1932	-	6.0	1939	Oct. 8, 1939	-	.9
1933	July 6, 1933	-	1.3	1940	Nov. 24, 1940	-	1.6
1934	Sept.15, 1934	-	-	1941	Apr. 29, 1941	-	5.2
1935	May 17, 1935	-	2.8	1942	June 14, 1942	-	2.6
1936	Sept.20, 1936	-	10	1943	July 3, 1943	-	5.8

8-809.49. Unnamed tributary (watershed 15) of Duck Creek
near Spur, Tex.(25)

Location.--Lat 33°28', long 100°53', 1 mile west of Spur, Dickens County.

Drainage area.--0.0133 sq mi.

Gage.--Recording.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calen- dar year	Date	Gage height (feet)	Discharge (cfs)	Calen- dar year	Date	Gage height (feet)	Discharge (cfs)
1930	Oct. 23, 1930	-	0.1	1937	Aug. 24, 1937	-	0.8
1931	-	-	0	1938	-	-	0
1932	June 20, 1932	-	-	1939	Oct. 8, 1939	-	(a)
1933	-	-	0	1940	Nov. 24, 1940	-	.5
1934	Sept.15, 1934	-	-	1941	Sept.18, 1941	-	3.0
1935	June 7, 1935	-	-	1942	June 14, 1942	-	.4
1936	Sept.20, 1936	-	5.2	1943	July 3, 1943	-	2.3
				1944	June 25, 1944	-	(a)

a Less than 0.1 cfs.

BRAZOS RIVER BASIN

8-815. Salt Croton Creek near Aspermont, Tex. (8)

Location.--Lat 33°24'05", long 100°24'30", on left bank 0.1 mile downstream from Haystack Creek, 2.4 miles downstream from Salt Flat Creek, 9.3 miles upstream from Salt Fork Brazos River, and 21 miles northwest of Aspermont, Stonewall County.

Drainage area.--64.3 sq mi.

Gage.--Recording.

Stage-discharge relation.--Defined by current-meter measurements below 250 cfs and extended above by slope-area measurements at 4.96 ft (6,910 cfs) and 6.42 ft (11,400 cfs).

Bankfull stage.--3.0 ft.

Historical data.--Flood of 1941 reached a stage of about 9 ft, from information by local residents.

Remarks.--Base for partial-duration series, 1,000 cfs. Prior to 1959 published as Dove Creek near Aspermont, Tex. Rain gage at site.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1957	Apr. 28, 1957	4.96	5,610	1960	Oct. 2, 1959	3.75	2,080
	May 8, 1957	3.83	2,250		July 7, 1960	3.38	1,370
	May 11, 1957	3.21	1,090		Aug. 24, 1960	3.85	2,290
	May 22, 1957	4.35	3,590	1961	Oct. 17, 1960	5.90	9,220
	June 1, 1957	4.70	4,720		June 5, 1961	4.89	5,580
	June 23, 1957	3.85	2,290		June 15, 1961	5.00	6,120
1958	Oct. 7, 1957	4.12	2,950		July 9, 1961	3.23	1,120
1959	June 22, 1959	3.92	2,450	1962	June 12, 1962	7.90	2,800
	July 17, 1959	3.52	1,660		Sept. 3, 1962	7.96	2,880
	Aug. 8, 1959	5.00	5,750		Sept. 17, 1962	7.84	2,720

8-861.5 North Fork Hubbard Creek near Albany, Tex. (8)

Location.--Lat 32°42'20", long 99°16'20", on downstream side of bridge on U. S. Highway 380, 1.6 miles upstream from Salt Prong Hubbard Creek, and 1.7 miles southeast of Albany, Shackelford County.

Drainage area.--38.4 sq mi.

Gage.--Recording. Datum of gage is 1,340.54 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 100 cfs.

Bankfull stage.--16 ft.

Historical data.--Highest stage since 1940, about 21 ft on June 10, 1940, and July 18, 1953, from information by local residents.

Remarks.--Base for partial-duration series, 100 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1963	June 11, 1963	3.72	134				

BRAZOS RIVER BASIN

8-881. Salt Creek at Olney, Tex. (3)

Location.--Lat 33°22'15", long 98°44'30", on right bank 21 ft downstream from bridge on State Highway 199 and 0.5 mile east of Olney, Young County.

Drainage area.--9.6 sq mi.

Gage.--Recording. Datum of gage is 1,164.03 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 680 cfs and extended above by slope-conveyance studies.

Bankfull stage.--7 ft.

Historical data.--Maximum stage since at least 1908, 16.7 ft in June 1915, from information by local residents.

Remarks.--Base for partial-duration series, 200 cfs. Rain gage at site.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1958	May 1, 1958	7.44	262	1961	Sept.12, 1961	5.95	162
	July 6, 1958	7.84	309	1962	Nov. 22, 1961	9.66	485
	Sept.16, 1958	8.18	345		June 9, 1962	9.04	299
1959	June 22, 1959	7.30	264		Sept. 6, 1962	9.28	360
	1960	Oct. 3, 1959	10.16	1,040	1963	Nov. 26, 1962	9.32
July 13, 1960		8.43	392		June 1, 1963	8.66	253

8-882. Salt Creek near Newcastle, Tex. (3)

Location.--Lat 33°13'00", long 98°38'55", on left bank 75 ft downstream from county bridge, 1.0 mile upstream from Oak Creek, and 5.0 miles east of Newcastle, Young County.

Drainage area.--57.9 sq mi.

Gage.--Recording.

Stage-discharge relation.--Defined by current-meter measurements below 10 cfs and extended above on the basis of slope-conveyance studies.

Bankfull stage.--10 ft.

Historical data.--Maximum flood known occurred in 1900 (stage and discharge unknown). Maximum stage since 1900 in 1941 and September 1955, gage height 20.6 ft, from information by local residents.

Remarks.--Base for partial-duration series, 400 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1959	July 19, 1959	6.33	386	1960	Feb. 3, 1960	8.08	690
1960	Oct. 4, 1959	16.92	3,840		July 14, 1960	7.40	572

BRAZOS RIVER BASIN

8-883. Oak Creek near Graham, Tex. (3)

Location.--Lat 33°12'40", long 98°37'05", on downstream side of bridge on Farm Road 1769, 2.5 miles upstream from mouth, and 7.0 miles northwest of Graham, Young County.

Drainage area.--19.7 sq mi.

Gage.--Recording.

Stage-discharge relation.--Defined by current-meter measurements below 330 cfs, and extended above by logarithmic plotting.

Bankfull stage.--8 ft.

Historical data.--Maximum stage since at least 1900, 15.2 ft in September 1955, from information by local residents.

Remarks.--Base for partial-duration series, 200 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1959	June 23, 1959	4.08	207	1962	Mar. 20, 1962	4.86	220
1960	Oct. 3, 1959	9.20	649		June 10, 1962	10.50	563
	Feb. 3, 1960	4.25	219		July 27, 1962	9.60	513
	July 7, 1960	5.68	303		Sept. 7, 1962	7.08	368
				1963	Apr. 27, 1963	5.10	245
1961	Oct. 18, 1960	8.42	555		June 1, 1963	4.97	239
	Jan. 8, 1961	4.78	261				
	Mar. 18, 1961	4.18	219				

8-937. North Bosque River at Stephenville, Tex. (2)

Location.--Lat 32°12'55", long 98°11'50", in center of stream on downstream side of bridge on U. S. Highway 67 at Stephenville, Erath County.

Drainage area.--93.2 sq mi.

Gage.--Recording. Datum of gage is 1,223.60 ft above mean sea level, datum of 1929, supplementary adjustment of 1942.

Stage-discharge relation.--Defined by current-meter measurements below 4,200 cfs, and extended above on the basis of indirect measurements of 40,000 and 49,000 cfs.

Bankfull stage.--15 ft.

Historical data.--Maximum stage since at least 1854, 23.5 ft May 19, 1955, from floodmarks (discharge, 49,000 cfs), from slope-area measurement of peak flow.

Remarks.--Base for partial-duration series, 1,000 cfs. Rain gage at site.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1959	Apr. 30, 1959	6.55	691	1961	June 3, 1961	12.90	2,770
	May 3, 1959	9.90	1,460		June 15, 1961	9.52	1,490
	July 6, 1959	18.26	6,850		June 17, 1961	10.35	1,740
1960	Oct. 4, 1959	19.90	12,100	1962	Oct. 9, 1961	11.43	2,030
	Nov. 4, 1959	7.26	1,140		Sept. 7, 1962	10.75	1,850
	Jan. 5, 1960	8.91	1,670	1963	Oct. 8, 1962	15.37	3,250
	Apr. 27, 1960	9.60	1,830		Apr. 28, 1963	12.70	2,210
1961	Jan. 7, 1961	10.03	1,630		May 28, 1963	15.10	3,100
					June 16, 1963	11.63	1,910

BRAZOS RIVER BASIN

8-940. Green Creek subwatershed No. 1 near Dublin, Tex.(2)

Location.--Lat 32°10'00", long 98°20'30", near center of dam on main headwater channel of Green Creek, three-quarters of a mile downstream from county road, 1.0 mile east of Farm Road 219, and 4.0 miles north of Dublin, Erath County.

Drainage area.--3.18 sq mi.

Gage.--Recording. Datum of gage is 1,408.00 ft above mean sea level, datum of 1929 (levels by U.S. Soil Conservation Service).

Remarks.--Peaks are based on maximum inflow (average for 15-minute interval), computed from outflow and change in reservoir contents, adjusted for rainfall on the reservoir surface during time of peak inflow. No adjustment made for reservoir losses. Base for partial-duration series, 125 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	May 18, 1955	-	a3,390	1958	Nov. 3, 1957	-	305
	Sept. 23, 1955	-	136		July 22, 1958	-	552
1956	Apr. 30, 1956	-	b9,910	1959	June 23, 1959	-	b259
1957	Apr. 26, 1957	-	887		June 26, 1959	-	430
	Apr. 28, 1957	-	262	1960	Oct. 3, 1959	-	1,400
	May 13, 1957	-	500		May 4, 1960	-	229
	May 18, 1957	-	378	1961	July 9, 1961	-	227
	May 23, 1957	-	760		Sept. 7, 1962	-	403
	May 25, 1957	-	876	1962			
1958	Oct. 13, 1957	-	181		Apr. 28, 1963	-	599

a First appreciable inflow since dam was completed in April 1955.

b Not adjusted for rainfall on water surface.

Note.--Only annual peaks after 1960.

8-945. Green Creek near Alexander, Tex.(2)

Location.--Lat 32°04'20", long 98°14'00", at downstream side of bridge on State Highway 6, 0.2 mile upstream from Missouri, Kansas, Texas Railroad Co. bridge, 1.0 mile upstream from Cottonwood Creek, and 1.7 miles northwest of Alexander, Erath County.

Drainage area.--45.5 sq mi.

Gage.--Crest-stage gage prior to May 27, 1958; recording and crest-stage gage thereafter. Datum of gage is 1,172 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 920 cfs and by contracted-opening measurements at 23,900 and 55,800 cfs.

Bankfull stage.--20 ft.

Historical data.--Flood of May 23, 1952, reached highest stage since at least 1910, from information by local resident. Also a local resident stated there was a very high flood in 1918.

Remarks.--Between 1954 and September 1956, eight floodwater-retarding structures were built. These structures have a total floodwater-detention capacity of 7,840 acre-ft below flood spillway crests and partly control the flow from 22.8 sq mi above the station. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	May 23, 1952	28.0	55,800	1958	October 1957	8.49	1,170
1955	May 19, 1955	13.24	4,000	1959	June 26, 1959	5.70	274
				1960	Oct. 4, 1959	12.14	3,190
1956	Apr. 30, 1956	23.95	23,900	1961	Jan. 7, 1961	6.80	580
1957	Apr. 26, 1957	14.76	5,400	1962	Oct. 9, 1961	11.70	2,880
				1963	June 16, 1963	9.15	1,460

Note.--Peak discharge shown for Apr. 30, 1956, includes undetermined amount of flow over emergency spillways of floodwater-retarding structures. Some of the other peak discharges given since 1955 include up to about 160 cfs of combined service spillway discharge.

BRAZOS RIVER BASIN

8-954. Hog Creek near Crawford, Tex. (9)

Location.--Lat 31°33'20", long 97°21'22", on downstream side of bridge on Farm Road 185, 5.6 miles east of Crawford, McLennan County.

Drainage area.--78.2 sq mi.

Gage.--Recording. Datum of gage is 560.54 ft above mean sea level, datum of 1929. Prior to Oct. 27, 1959, wire-weight gage at same site and datum.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--13 ft.

Historical data.--Maximum stage since 1900, 17.5 ft Sept. 26, 1936, from information by local residents.

Remarks.--Base for partial-duration series, 1,600 cfs. Rain gage at site.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1960	Oct. 4, 1959	14.31	15,400	1961	Feb. 16, 1961	8.32	5,300
	Oct. 13, 1959	6.30	2,590		June 15, 1961	7.20	3,730
	Jan. 5, 1960	5.58	1,820		June 18, 1961	7.95	4,850
	July 7, 1960	9.60	7,310		July 16, 1961	6.05	2,300
1961	Oct. 28, 1960	5.67	1,870	1962	Oct. 10, 1961	11.50	10,500
	Dec. 8, 1960	6.43	2,770		Nov. 22, 1961	9.50	7,150
	Dec. 10, 1960	5.40	1,620		Dec. 9, 1961	5.54	1,770
	Jan. 8, 1961	7.87	4,710		Apr. 30, 1962	6.53	2,890
	Jan. 12, 1961	6.25	2,530		Sept. 8, 1962	7.98	4,850
	Feb. 5, 1961	7.46	4,150	1963	May 6, 1963	6.33	2,650

8-967. Sandy Creek watershed SW-16 near Riesel, Tex.(9)

Location.--Lat 31°28'37", long 96°53'22", on Blacklands Experimental Watershed, 2 miles east of Riesel, McLennan County.

Drainage area.--0.0050 sq mi.

Gage.--Recording. Datum of gage is 536.9 ft above mean sea level.

Stage-discharge relation.--Defined by theoretical rating for 2-foot Parshall flume.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service, Blacklands Experimental Watershed at Riesel, Tex. Detailed information is available from the Riesel office regarding basin shape and slope, type of soils, erosion condition, watershed conditions (kind of soil cover) that bear a relationship to hydrology, and rainfall. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1938	Apr. 15, 1938	-	1.3	1941	June 10, 1941	-	14
1939	May 17, 1939	-	6.1	1942	Sept. 8, 1942	-	12
1940	Oct. 31, 1940	-	19	1943	June 5, 1943	-	12

BRAZOS RIVER BASIN

8-968. Cow Bayou subwatershed No. 4 near Bruceville, Tex. (9)

Location.--Lat 31°20', long 97°16', near center of dam on Foster Branch, 1.0 mile upstream from South Fork Cow Bayou, 2.1 miles west of Bruceville, McLennan County, and 2.3 miles northwest of Eddy.

Drainage area.--5.25 sq mi.

Gage.--Recording. Datum of gage is 574.46 ft above mean sea level, datum of 1929 (levels by U. S. Soil Conservation Service).

Remarks.--Peak discharge based on maximum inflow (average for 15-minute interval), computed from outflow and change in reservoir contents, adjusted for rainfall on the reservoir surface during time of peak inflow. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1957	May 11, 1957	-	6,900	1961	June 8, 1961	-	628
1958	Oct. 14, 1957	-	1,510	1962	June 30, 1962	-	293
1959	June 23, 1959	-	1,690	1963	Oct. 26, 1962	-	19
1960	Oct. 4, 1959	-	1,400				

8-970. Cow Bayou at Mooreville, Tex.(9)

Location.--Lat 31°18'45", long 97°08'16", on right bank at downstream side of county bridge, 500 ft downstream from confluence of North Cow Bayou and South Cow Bayou, 0.8 mile north of Mooreville, Falls County, and 5.0 miles northwest of Chilton.

Drainage area.--79.6 sq mi.

Gage.--Nonrecording prior to June 10, 1958; recording thereafter. Datum of gage is 399.58 ft above mean sea level, datum of 1929 (levels by U.S. Soil Conservation Service).

Stage-discharge relation.--Defined by current-meter measurements below 4,500 cfs and extended above to 7,960 cfs on basis of logarithmic plotting.

Bankfull stage.--14 ft.

Historical data.--Maximum stage since at least 1900, that of May 1, 1944.

Remarks.--Flow from 28.0 sq mi above station is partly controlled by nine floodwater-detention structures with a total combined capacity, of 9,770 acre-ft below spillway crest. First structure completed in April 1955; last structure completed in June 1958. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1944	May 1, 1944	31	-	1958	Oct. 14, 1957	22.85	6,460
				1959	June 24, 1959	22.95	6,700
1955	Apr. 9, 1955	21.65	5,100	1960	Oct. 4, 1959	23.86	7,960
1956	May 1, 1956	19.39	3,280	1961	Dec. 8, 1960	21.80	5,300
1957	May 12, 1957	29.4	-	1962	June 28, 1962	19.83	3,560
				1963	Sept. 15, 1963	7.0	231

Note.--Peak stage shown for May 12, 1957 affected by undetermined amount of flow over emergency spillways of floodwater-retarding structures. Peak discharges shown since 1955 include up to about 250 cfs of combined service spillway discharge.

BRAZOS RIVER BASIN

8-980. Deer Creek at Chilton, Tex. (9)

Location.--Lat 31°16', long 97°04', 75 ft downstream from San Antonio and Aransas Pass Railway bridge and 0.8 mile south of Chilton, Falls County.

Drainage area.--81.8 sq mi.

Gage.--Recording. Datum of gage is 372.60 ft above mean sea level, datum of 1929.

Historical data.--Flood of September 1921 reached a stage of about 20.5 ft, from information by local residents.

Remarks.--Only maximum annual discharge shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1934	Apr. 6, 1934	13.2	4,000	1936	Dec. 6, 1935	16.46	16,000
1935	May 18, 1935	16.08	14,500				

8-982. Brushy Creek watershed A near Riesel, Tex. (9)

Location.--Lat 31°32'10", long 96°53'33", 4.8 miles northeast of Riesel, McLennan County.

Drainage area.--0.0656 sq mi.

Gage.--Recording. Datum of gage is 573.3 ft above mean sea level.

Stage-discharge relation.--Defined by theoretical rating for a 10-foot Parshall flume and checked by current meter.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service, Blacklands Experimental Watershed at Riesel, Tex. Detailed information is available from the Riesel office regarding basin shape and slope, type of soils, erosion conditions, watershed conditions (kind of soil cover) that bear a relationship to hydrology, and rainfall. The drainage area is artificially controlled, therefore no gage heights are shown. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1939	June 19, 1939	-	15	1942	Sept. 8, 1942	-	35
1940	Nov. 22, 1940	-	24	1943	June 5, 1943	-	35
1941	May 4, 1941	-	69				

BRAZOS RIVER BASIN

8-982.03. Brushy Creek watershed C near Riesel, Tex.(9)

Location.--Lat 31°31'11", long 96°53'34", at bridge on county road, 3.8 miles northeast of Riesel, McLennan County.

Drainage area.--0.905 sq mi.

Gage.--Recording. Datum of gage is 532.4 ft above mean sea level.

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service, Blacklands Experimental Watershed at Riesel, Tex. Detailed information is available from the Riesel office regarding basin shape and slope, type of soils, erosion conditions, watershed conditions (kind of soil cover) that bear a relationship to hydrology, and rainfall. The drainage area is artificially controlled, therefore no gage heights are shown. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1939	June 19, 1939	-	105	1953	Mar. 12, 1953	-	309
1940	Nov. 22, 1940	-	485	1954	May 11, 1954	-	438
				1955	Mar. 21, 1955	-	117
1941	June 10, 1941	-	514				
1942	Sept. 8, 1942	-	438	1956	May 1, 1956	-	123
1943	June 5, 1943	-	216	1957	Apr. 19, 1957	-	776
				1958	Sept. 19, 1958	-	467
1949	June 15, 1949	-	88	1959	June 23, 1959	-	365
1950	Feb. 12, 1950	-	385	1960	Dec. 7, 1960	-	152
1951	Sept. 13, 1951	-	105	1961	Feb. 16, 1961	-	204
1952	May 23, 1952	-	210	1962	June 4, 1962	-	181
				1963	Apr. 26, 1963	-	18

8-982.06. Brushy Creek watershed D near Riesel, Tex.(9)

Location.--Lat 31°30'38", long 96°53'22", at bridge on county road, 3.2 miles northeast of Riesel, McLennan County.

Drainage area.--1.73 sq mi.

Gage.--Recording. Datum of gage is 518.8 ft above mean sea level.

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service, Blacklands Experimental Watershed at Riesel, Tex. Detailed information is available from the Riesel office regarding basin shape and slope, type of soils, erosion conditions, watershed conditions (kind of soil cover) that bear a relationship to hydrology, and rainfall. The drainage area is artificially controlled, therefore no gage heights are shown. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1938	Apr. 15, 1938	-	201	1953	May 12, 1953	-	828
1939	June 19, 1939	-	90	1954	May 11, 1954	-	806
1940	Nov. 22, 1940	-	795	1955	Mar. 21, 1955	-	168
1941	June 10, 1941	-	839	1956	Nov. 4, 1956	-	134
1942	Sept. 8, 1942	-	515	1957	Apr. 19, 1957	-	1,150
1943	June 5, 1943	-	302	1958	Sept. 19, 1958	-	-
				1959	June 23, 1959	-	676
1949	June 15, 1949	-	235	1960	Dec. 7, 1960	-	269
1950	July 15, 1950	-	604				
				1961	Feb. 16, 1961	-	402
1951	Sept. 13, 1951	-	571	1962	June 4, 1962	-	246
1952	May 23, 1952	-	470	1963	Apr. 26, 1963	-	11

BRAZOS RIVER BASIN

8-982.09. Brushy Creek watershed SW-14 near Riesel, Tex.(9)

Location.--Lat 31°28'59", long 96°53'27", on Blacklands Experimental Watershed, 2 miles east of Riesel, McLennan County.

Drainage area.--0.0047 sq mi.

Gage.--Recording. Datum of gage is 541.8 ft above mean sea level.

Stage-discharge relation.--Defined by theoretical rating for 3-foot H-flume.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service, Blacklands Experimental Watershed at Riesel, Tex. Detailed information is available from the Riesel office regarding basin shape and slope, type of soils, erosion condition, watershed conditions (kind of soil cover) that bear a relationship to hydrology, and rainfall. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1939	May 17, 1939	-	3.1	1942	June 11, 1942	-	13
1940	July 3, 1940	-	14	1943	June 5, 1943	-	9.6
1941	June 10, 1941	-	12				

8-982.12. Brushy Creek watershed SW-12 near Riesel, Tex.(9)

Location.--Lat 31°28'48", long 96°52'59", on Blacklands Experimental Watershed, 2 miles east of Riesel, McLennan County.

Drainage area.--0.0046 sq mi.

Gage.--Recording. Datum of gage is 531.7 ft above mean sea level.

Stage-discharge relation.--Defined by theoretical rating for 3-foot H-flume.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service, Blacklands Experimental Watershed at Riesel, Tex. Detailed information is available from the Riesel office regarding basin shape and slope, type of soils, erosion condition, watershed conditions (kind of soil cover) that bear a relationship to hydrology, and rainfall. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1938	Feb. 16, 1938	-	1.3	1952	Dec. 30, 1952	-	0.6
1939	-	-	0	1953	Mar. 12, 1953	-	6.5
1940	Nov. 24, 1940	-	2.8	1954	May 11, 1954	-	.1
				1955	Apr. 21, 1955	-	.5
1941	June 10, 1941	-	10				
1942	June 11, 1942	-	5.4	1956	-	-	0
1943	Mar. 24, 1943	-	.1	1957	Apr. 19, 1957	-	10
				1958	Feb. 22, 1958	-	.4
1948	Apr. 25, 1948	-	.3	1959	June 23, 1959	-	2.1
1949	Apr. 27, 1949	-	.1	1960	Jan. 13, 1960	-	1.3
1950	Feb. 12, 1950	-	6.8				
				1961	Feb. 16, 1961	-	1.8
1951	Sept. 13, 1951	-	(a)	1962	June 9, 1962	-	12
				1963	-	-	0

a Less than 0.1 cfs.

BRAZOS RIVER BASIN

8-982.15. Brushy Creek watershed Y-10 near Riesel, Tex.(9)

Location.--Lat 31°28'31", long 96°53'10", on Blacklands Experimental Watershed, 2.2 miles east of Riesel, McLennan County.

Drainage area.--0.0291 sq mi; 0.0328 sq mi prior to Jan. 1, 1956.

Gage.--Recording. Datum of gage is 539 ft above mean sea level.

Stage-discharge relation.--Defined by theoretical rating for 6-foot Parshall flume, modified with weir for measuring low flows.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service, Blacklands Experimental Watershed at Riesel, Tex. Detailed information is available from the Riesel office regarding basin shape and slope, type of soils, erosion condition, watershed conditions (kind of soil cover) that bear a relationship to hydrology, and rainfall. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1939	May 20, 1939	-	12	1952	May 23, 1952	-	24
1940	Nov. 22, 1940	-	52	1953	May 12, 1953	-	19
				1954	May 11, 1954	-	20
1941	June 10, 1941	-	73	1955	Mar. 21, 1955	-	35
1942	June 11, 1942	-	59				
1943	June 5, 1943	-	21	1956	Nov. 4, 1956	-	2.4
				1957	Apr. 19, 1957	-	70
1946	May 12, 1946	-	34	1958	May 3, 1958	-	6.0
1947	Mar. 18, 1947	-	6.8	1959	June 23, 1959	-	13
1948	Apr. 25, 1948	-	19	1960	June 26, 1960	-	7.3
1949	July 4, 1949	-	20				
1950	Feb. 12, 1950	-	19	1961	June 25, 1961	-	11
				1962	June 9, 1962	-	7.3
1951	June 16, 1951	-	2.5	1963	-	-	0

8-982.18. Brushy Creek watershed Y-6 near Riesel, Tex.(9)

Location.--Lat 31°28'26", long 96°53'09", on Blacklands Experimental Watershed, 2.2 miles east of Riesel, McLennan County.

Drainage area.--0.0255 sq mi; 0.0327 sq mi prior to Jan. 1, 1956.

Gage.--Recording. Datum of gage is 538 ft above mean sea level.

Stage-discharge relation.--Defined by theoretical rating for 6-foot Parshall flume, modified with weir for measuring low flows.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service, Blacklands Experimental Watershed at Riesel, Tex. Detailed information is available from the Riesel office regarding basin shape and slope, type of soils, erosion condition, watershed conditions (kind of soil cover) that bear a relationship to hydrology, and rainfall. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1939	May 17, 1939	-	16	1953	May 12, 1953	-	11
1940	Nov. 22, 1940	-	55	1954	May 11, 1954	-	11
				1955	Mar. 21, 1955	-	19
1941	June 10, 1941	-	80				
1942	Sept. 8, 1942	-	67	1956	Nov. 4, 1956	-	2.8
1943	June 5, 1943	-	7.8	1957	Apr. 19, 1957	-	27
				1958	Oct. 21, 1958	-	2.3
1948	Apr. 25, 1948	-	12	1959	June 23, 1959	-	17
1949	July 4, 1949	-	20	1960	Dec. 8, 1960	-	3.3
1950	Feb. 12, 1950	-	20				
				1961	June 15, 1961	-	14
1951	Sept. 13, 1951	-	2.3	1962	June 9, 1962	-	16
1952	May 23, 1952	-	11	1963	-	-	0

BRAZOS RIVER BASIN

8-982.21. Brushy Creek watershed Y-4 near Riesel, Tex.(9)

Location.--Lat 31°28'30", long 96°52'54", on Blacklands Experimental Watershed, 2.4 miles east of Riesel, McLennan County.

Drainage area.--0.125 sq mi.

Gage.--Recording. Datum of gage is 524 ft above mean sea level.

Stage-discharge relation.--Defined by theoretical rating for 10-foot Parshall flume, modified with weir for measuring low flows.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service, Blacklands Experimental Watershed at Riesel, Tex. Detailed information is available from the Riesel office regarding basin shape and slope, type of soils, erosion condition, watershed conditions (kind of soil cover) that bear a relationship to hydrology, and rainfall. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1939	May 20, 1939	-	46	1952	May 23, 1952	-	31
1940	Nov. 22, 1940	-	187	1953	May 12, 1953	-	46
				1954	May 11, 1954	-	50
1941	June 10, 1941	-	251	1955	Mar. 21, 1955	-	83
1942	Sept. 8, 1942	-	197				
1943	June 5, 1943	-	24	1956	Nov. 4, 1956	-	9.7
				1957	Apr. 19, 1957	-	203
1946	May 12, 1946	-	111	1958	May 3, 1958	-	12
1947	Mar. 18, 1947	-	23	1959	June 23, 1959	-	64
1948	Apr. 25, 1948	-	48	1960	Dec. 7, 1960	-	15
1949	July 4, 1949	-	72				
1950	Feb. 12, 1950	-	76	1961	June 25, 1961	-	27
				1962	June 9, 1962	-	53
1951	Sept. 13, 1951	-	(a)	1963	-	-	0

a Less than 0.1 cfs.

8-982.24. Brushy Creek watershed Y-8 near Riesel, Tex.(9)

Location.--Lat 31°28'22", long 96°52'54", on Blacklands Experimental Watershed, 2.5 miles east of Riesel, McLennan County.

Drainage area.--0.0325 sq mi.

Gage.--Recording. Datum of gage is 537 ft above mean sea level.

Stage-discharge relation.--Defined by theoretical rating for 6-foot Parshall flume, modified with weir for measuring low flows.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service, Blacklands Experimental Watershed at Riesel, Tex. Detailed information is available from the Riesel office regarding basin shape and slope, type of soils, erosion condition, watershed conditions (kind of soil cover) that bear a relationship to hydrology, and rainfall. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1939	May 18, 1939	-	13	1953	May 12, 1953	-	20
1940	Nov. 22, 1940	-	52	1954	May 11, 1954	-	16
				1955	Mar. 21, 1955	-	28
1941	June 10, 1941	-	69				
1942	Sept. 8, 1942	-	60	1956	May 1, 1956	-	.8
1943	June 5, 1943	-	15	1957	Apr. 19, 1957	-	68
				1958	Feb. 23, 1958	-	2.7
1949	July 4, 1949	-	17	1959	June 23, 1959	-	37
1950	Feb. 12, 1950	-	14	1960	Dec. 7, 1960	-	5.0
1951	June 16, 1951	-	.4	1961	Feb. 5, 1961	-	5.0
1952	May 23, 1952	-	15	1962	June 9, 1962	-	39
				1963	-	-	0

BRAZOS RIVER BASIN

8-982.27. Brushy Creek watershed Y-2 near Riesel, Tex.(9)

Location.--Lat 31°28'30", long 96°52'46", on Blacklands Experimental Watershed, 2.5 miles east of Riesel, McLennan County.

Drainage area.--0.206 sq mi.

Gage.--Recording. Datum of gage is 518 ft above mean sea level.

Stage-discharge relation.--Defined by theoretical rating for 15-foot Parshall flume, modified with weir for measuring low flows.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service, Blacklands Experimental Watershed at Riesel, Tex. Detailed information is available from the Riesel office regarding basin shape and slope, type of soils, erosion condition, watershed conditions (kind of soil cover) that bear a relationship to hydrology, and rainfall. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1939	May 20, 1939	-	71	1951	June 16, 1951	-	(a)
1940	Nov. 22, 1940	-	291	1952	May 23, 1952	-	56
				1953	Mar. 12, 1953	-	74
1941	June 10, 1941	-	406	1954	May 11, 1954	-	64
1942	Sept. 8, 1942	-	327	1955	Mar. 21, 1955	-	138
1943	June 5, 1943	-	35				
1944	May 1, 1944	-	542	1956	Nov. 4, 1956	-	13
1945	Mar. 3, 1945	-	170	1957	Apr. 19, 1957	-	344
				1958	May 3, 1958	-	17
1946	May 12, 1946	-	208	1959	June 23, 1959	-	106
1947	Mar. 18, 1947	-	45	1960	Dec. 7, 1960	-	23
1948	Apr. 25, 1948	-	110				
1949	July 4, 1949	-	118	1961	June 18, 1961	-	35
1950	Feb. 12, 1950	-	126	1962	June 9, 1962	-	120
				1963	-	-	0

a Less than 0.1 cfs.

8-982.3. Brushy Creek watershed Y-7 near Riesel, Tex.(9)

Location.--Lat 31°28'08", long 96°52'49", on Blacklands Experimental Watershed, 2.5 miles east of Riesel, McLennan County.

Drainage area.--0.0625 sq mi.

Gage.--Recording. Datum of gage is 544 ft above mean sea level.

Stage-discharge relation.--Defined by theoretical rating for 6-foot Parshall flume, modified with weir for measuring low flows.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service, Blacklands Experimental Watershed at Riesel, Tex. Detailed information is available from the Riesel office regarding basin shape and slope, type of soils, erosion condition, watershed conditions (kind of soil cover) that bear a relationship to hydrology, and rainfall. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1939	May 18, 1939	-	24	1953	May 12, 1953	-	65
1940	Nov. 22, 1940	-	120	1954	May 11, 1954	-	58
				1955	Mar. 21, 1955	-	73
1941	June 10, 1941	-	145				
1942	Sept. 8, 1942	-	92	1956	Nov. 4, 1956	-	3.6
1943	June 5, 1943	-	21	1957	Apr. 19, 1957	-	127
				1958	May 3, 1958	-	9.7
1948	Apr. 25, 1948	-	55	1959	June 23, 1959	-	71
1949	July 4, 1949	-	51	1960	Jan. 13, 1960	-	10
1950	Feb. 12, 1950	-	80				
				1961	June 18, 1961	-	13
1951	June 16, 1951	-	5.2	1962	June 9, 1962	-	38
1952	May 23, 1952	-	24	1963	-	-	0

BRAZOS RIVER BASIN

8-982.33. Brushy Creek watershed SW-7 near Riesel, Tex.(9)

Location.--Lat 31°28'11", long 96°52'59", on Blacklands Experimental Watershed, 2 miles east of Riesel, McLennan County.

Drainage area.--0.0049 sq mi.

Gage.--Recording. Datum of gage is 552.6 ft above mean sea level.

Stage-discharge relation.--Defined by theoretical rating for 3-foot H-flume.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service, Blacklands Experimental Watershed at Riesel, Tex. Detailed information is available from the Riesel office regarding basin shape and slope, type of soils, erosion condition, watershed conditions (kind of soil cover) that bear a relationship to hydrology, and rainfall. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1939	May 20, 1939	-	3.3	1942	Sept. 8, 1942	-	18
1940	Oct. 30, 1940	-	12	1943	May 30, 1943	-	13
1941	June 10, 1941	-	16				

8-982.36. Brushy Creek watershed SW-13 near Riesel, Tex.(9)

Location.--Lat 31°28'41", long 96°52'48", on Blacklands Experimental Watershed, 2 miles east of Riesel, McLennan County.

Drainage area.--0.0050 sq mi.

Gage.--Recording. Datum of gage is 535.8 ft above mean sea level.

Stage-discharge relation.--Defined by theoretical rating for 3-foot H-flume.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service, Blacklands Experimental Watershed at Riesel, Tex. Detailed information is available from the Riesel office regarding basin shape and slope, type of soils, erosion condition, watershed conditions (kind of soil cover) that bear a relationship to hydrology, and rainfall. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1939	May 17, 1939	-	4.9	1942	June 11, 1942	-	18
1940	Oct. 31, 1940	-	22	1943	June 5, 1943	-	5.5
1941	June 10, 1941	-	11				

8-982.39. Brushy Creek watershed Y near Riesel, Tex.(9)

Location.--Lat 31°28'36", long 96°52'36", on Blacklands Experimental Watershed, 2.7 miles east of Riesel, McLennan County.

Drainage area.--0.483 sq mi.

Gage.--Recording. Datum of gage is 505.8 ft above mean sea level.

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service, Blacklands Experimental Watershed at Riesel, Tex. Detailed information is available from the Riesel office regarding basin shape and slope, type of soils, erosion condition, watershed conditions (kind of soil cover) that bear a relationship to hydrology, and rainfall. Only annual (calendar year) peaks are shown.

BRAZOS RIVER BASIN

Peak stages and discharges of Brushy Creek watershed Y near Riesel, Tex.

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1938	Feb. 16, 1938	-	231	1951	June 16, 1951	-	6.2
1939	May 20, 1939	-	122	1952	May 23, 1952	-	122
1940	Nov. 22, 1940	-	707	1953	Mar. 12, 1953	-	143
1941	June 10, 1941	-	760	1954	May 11, 1954	-	137
1942	Sept. 8, 1942	-	570	1955	Mar. 21, 1955	-	290
1943	June 5, 1943	-	78	1956	Nov. 4, 1956	-	9.3
1946	May 12, 1946	-	551	1957	Apr. 19, 1957	-	791
1947	Mar. 18, 1947	-	100	1958	May 3, 1958	-	34
1948	Apr. 25, 1948	-	212	1959	June 23, 1959	-	178
1949	July 4, 1949	-	312	1960	Dec. 7, 1960	-	47
1950	Feb. 12, 1950	-	402	1961	June 18, 1961	-	87
				1962	June 9, 1962	-	221
				1963	-	-	0

8-982.42. Brushy Creek watershed G near Riesel, Tex.(9)

Location.--Lat 31°28'59", long 96°52'06", 3.2 miles east of Riesel, McLennan County.

Drainage area.--6.84 sq mi.

Gage.--Recording, with auxiliary slope recorder for high flows. Datum of gage is 478 ft above mean sea level.

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service, Blacklands Experimental Watershed at Riesel, Tex. Detailed information is available from the Riesel office regarding basin shape and slope, type of soils, erosion conditions, watershed conditions (kind of soil cover) that bear a relationship to hydrology, and rainfall. Stage-discharge relation is affected by rate of change in stage, and peak stage occurred from 5 to 30 minutes after peak discharge. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1938	Jan. 23, 1938	6.08	795	1943	June 5, 1943	3.80	309
1939	May 20, 1939	2.84	88	1958	Sept. 19, 1958	6.96	707
1940	Nov. 22, 1940	8.48	1,850	1959	June 23, 1959	9.00	1,680
1941	June 10, 1941	7.94	1,500	1960	Dec. 7, 1960	6.38	680
1942	Sept. 8, 1942	7.87	1,100	1961	Feb. 5, 1961	-	1,020
				1962	June 9, 1962	-	441
				1963	-	-	0

8-982.45. Brushy Creek watershed Z near Riesel, Tex.(9)

Location.--Lat 31°28'08", long 96°51'44", at bridge on county road, 3.7 miles southeast of Riesel, McLennan County.

Drainage area.--0.484 sq mi.

Gage.--Recording. Datum of gage is 492.0 ft above mean sea level.

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service, Blacklands Experimental Watershed at Riesel, Tex. Detailed information is available from the Riesel office regarding basin shape and slope, type of soils, erosion conditions, watershed conditions (kind of soil cover) that bear a relationship to hydrology, and rainfall. The drainage area is artificially controlled, therefore no gage heights are shown. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1939	May 20, 1939	-	84	1942	Sept. 8, 1942	-	234
1940	Nov. 22, 1940	-	425	1943	Apr. 8, 1943	-	13
1941	June 10, 1941	-	481				

BRAZOS RIVER BASIN

8-982.48. Brushy Creek watershed V near Riesel, Tex.(9)

Location.--Lat 31°27'54", long 96°50'59", 4.4 miles southeast of Riesel, McLennan County.

Drainage area.--9.16 sq mi.

Gage.--Recording, with auxiliary slope recorder for high flows. Datum of gage is 453.4 ft above mean sea level.

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service, Blacklands Experimental Watershed at Riesel, Tex. Detailed information is available from the Riesel office regarding basin shape and slope, type of soils, erosion conditions, watershed conditions (kind of soil cover) that bear a relationship to hydrology, and rainfall. Stage-discharge relation is affected by rate of change in stage, and peak stage occurred from 5 to 30 minutes after peak discharge. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1938	Jan. 23, 1938	11.58	886	1941	June 10, 1941	12.63	1,360
1939	May 20, 1939	5.12	295	1942	Sept. 8, 1942	10.93	1,000
1940	Nov. 22, 1940	12.90	1,650	1943	June 5, 1943	4.44	236

8-982.51. Brushy Creek watershed SW-18 near Riesel, Tex.(9)

Location.--Lat 31°28'04", long 96°53'07", on Blacklands Experimental Watershed, 2 miles east of Riesel, McLennan County.

Drainage area.--0.0048 sq mi.

Gage.--Recording. Datum of gage is 561.0 ft above mean sea level.

Stage-discharge relation.--Defined by theoretical rating for 3-foot H-flume.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service, Blacklands Experimental Watershed at Riesel, Tex. Detailed information is available from the Riesel office regarding basin shape and slope, type of soils, erosion condition, watershed conditions (kind of soil cover) that bear a relationship to hydrology, and rainfall. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1939	May 20, 1939	-	1.6	1942	Sept. 8, 1942	-	13
1940	Oct. 31, 1940	-	23	1943	June 5, 1943	-	4.2
1941	June 10, 1941	-	15				

8-982.54. Brushy Creek watershed SW-11 near Riesel, Tex. (9)

Location.--Lat 31°28'02", long 96°53'04", on Blacklands Experimental Watershed, 2 miles east of Riesel, McLennan County.

Drainage area.--0.0050 sq mi.

Gage.--Recording. Datum of gage is 559.0 ft above mean sea level.

Stage-discharge relation.--Defined by theoretical rating for 3-foot H-flume.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service, Blacklands Experimental Watershed at Riesel, Tex. Detailed information is available from the Riesel office regarding basin shape and slope, type of soils, erosion condition, watershed conditions (kind of soil cover) that bear a relationship to hydrology, and rainfall. Only annual (calendar year) peaks are shown.

BRAZOS RIVER BASIN

Peak stages and discharges of Brushy Creek watershed SW-11 near Riesel, Tex.

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1939	May 20, 1939	-	1.8	1942	Sept. 8, 1942	-	12
1940	Oct. 31, 1940	-	22	1943	June 5, 1943	-	1.4
1941	June 10, 1941	-	14				

8-982.57. Brushy Creek watershed SW-17 near Riesel, Tex.(9)

Location.--Lat 31°27'45", long 96°53'14", on Blacklands Experimental Watershed, 2 miles east of Riesel, McLennan County.

Drainage area.--0.0047 sq mi.

Gage.--Recording. Datum of gage is 550.0 ft above mean sea level.

Stage-discharge relation.--Defined by theoretical rating for 3-foot H-flume.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service, Blacklands Experimental Watershed at Riesel, Tex. Detailed information is available from the Riesel office regarding basin shape and slope, type of soils, erosion condition, watershed conditions (kind of soil cover) that bear a relationship to hydrology, and rainfall. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1939	May 18, 1939	-	2.5	1952	May 23, 1952	-	1.9
1940	Oct. 31, 1940	-	21	1953	Mar. 12, 1953	-	4.6
				1954	May 11, 1954	-	2.6
1941	June 10, 1941	-	19	1955	Mar. 21, 1955	-	3.7
1942	Sept. 8, 1942	-	18				
1943	June 10, 1943	-	13	1956	Nov. 4, 1956	-	.1
				1957	Apr. 19, 1957	-	10
1948	Apr. 25, 1948	-	11	1958	Aug. 24, 1958	-	.6
1949	July 4, 1949	-	3.8	1959	June 23, 1959	-	6.5
1950	Feb. 12, 1950	-	11	1960	Jan. 13, 1960	-	1.2
1951	June 16, 1951	-	.5	1961	June 25, 1961	-	1.8
				1962	June 9, 1962	-	12
				1963	-	-	0

8-982.6. Brushy Creek watershed SW-5 near Riesel, Tex.(9)

Location.--Lat 31°27'46", long 96°53'00", on Blacklands Experimental Watershed, 2 miles east of Riesel, McLennan County.

Drainage area.--0.0048 sq mi.

Gage.--Recording. Datum of gage is 546.6 ft above mean sea level.

Stage-discharge relation.--Defined by theoretical rating for 3-foot H-flume.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service, Blacklands Experimental Watershed at Riesel, Tex. Detailed information is available from the Riesel office regarding basin shape and slope, type of soils, erosion condition, watershed conditions (kind of soil cover) that bear a relationship to hydrology, and rainfall. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1939	May 17, 1939	-	2.3	1942	Dec. 26, 1942	-	14
1940	Oct. 31, 1940	-	20	1943	June 5, 1943	-	9.6
1941	June 10, 1941	-	19				

BRAZOS RIVER BASIN

8-982.63. Brushy Creek watershed W-1 near Riesel, Tex.(9)

Location.--Lat 31°27'27", long 96°52'48", on Blacklands Experimental Watershed, 2.2 miles southeast of Riesel, McLennan County.

Drainage area.--0.275 sq mi.

Gage.--Recording. Datum of gage is 520.4 ft above mean sea level.

Stage-discharge relation.--Defined by theoretical rating for 15-foot Parshall flume, modified with weir for measuring low flows.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service, Blacklands Experimental Watershed at Riesel, Tex. Detailed information is available from the Riesel office regarding basin shape and slope, type of soils, erosion conditions, watershed conditions (kind of soil cover) that bear a relationship to hydrology, and rainfall. The drainage area is artificially controlled, therefore no gage heights are shown. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1938	Feb. 16, 1938	-	106	1950	Feb. 12, 1950	-	334
1939	May 20, 1939	-	67				
1940	Nov. 22, 1940	-	472	1951	June 16, 1951	-	23
				1952	May 23, 1952	-	94
1941	June 10, 1941	-	603	1953	May 12, 1953	-	211
1942	Sept. 8, 1942	-	476	1954	May 11, 1954	-	236
1943	June 5, 1943	-	192	1955	Mar. 21, 1955	-	268
1944	May 1, 1944	-	800				
1945	Mar. 3, 1945	-	319	1956	Nov. 4, 1956	-	44
				1957	Apr. 19, 1957	-	509
1946	May 12, 1946	-	382	1958	Aug. 24, 1958	-	55
1947	May 20, 1947	-	78	1959	June 23, 1959	-	335
1948	Apr. 25, 1948	-	287	1960	Oct. 18, 1960	-	35
1949	July 4, 1949	-	245				
				1961	June 25, 1961	-	80
				1962	June 9, 1962	-	387
				1963	-	-	0

8-982.66. Brushy Creek watershed SW-3 near Riesel, Tex.(9)

Location.--Lat 31°27'29", long 96°53'12", on Blacklands Experimental Watershed, 2 miles east of Riesel, McLennan County.

Drainage area.--0.0048 sq mi.

Gage.--Recording. Datum of gage is 553.8 ft above mean sea level.

Stage-discharge relation.--Defined by theoretical rating for 3-foot H-flume.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service, Blacklands Experimental Watershed at Riesel, Tex. Detailed information is available from the Riesel office regarding basin shape and slope, type of soils, erosion condition, watershed conditions (kind of soil cover) that bear a relationship to hydrology, and rainfall. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1939	May 20, 1939	-	1.4	1942	Sept. 8, 1942	-	9.2
1940	Nov. 22, 1940	-	10	1943	June 5, 1943	-	8.9
1941	June 10, 1941	-	15				

BRAZOS RIVER BASIN

8-982.69. Brushy Creek watershed W-6 near Riesel, Tex.(9)

Location.--Lat 31°27'24", long 96°53'11", on Blacklands Experimental Watershed, 2.5 miles southeast of Riesel, McLennan County.

Drainage area.--0.0661 sq mi.

Gage.--Recording. Datum of gage is 538 ft above mean sea level.

Stage-discharge relation.--Defined by theoretical rating for 6-foot Parshall flume, modified with weir for measuring low flows.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service, Blacklands Experimental Watershed at Riesel, Tex. Detailed information is available from the Riesel office regarding basin shape and slope, type of soils, erosion condition, watershed conditions (kind of soil cover) that bear a relationship to hydrology, and rainfall. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1939	May 20, 1939	-	12	1951	June 16, 1951	-	6.0
1940	Nov. 22, 1940	-	107	1952	May 23, 1952	-	38
				1953	Mar. 12, 1953	-	62
1941	June 10, 1941	-	170	1954	May 11, 1954	-	46
1942	Sept. 8, 1942	-	96	1955	Mar. 21, 1955	-	70
1943	June 5, 1943	-	43				
				1956	-	-	0
1946	May 12, 1946	-	84	1957	Apr. 19, 1957	-	133
1947	May 20, 1947	-	20	1958	Feb. 23, 1958	-	3.8
1948	Apr. 25, 1948	-	65	1959	June 23, 1959	-	68
1949	July 4, 1949	-	66	1960	Dec. 7, 1960	-	11
1950	Feb. 12, 1950	-	80				
				1961	Feb. 5, 1961	-	11
				1962	June 9, 1962	-	16
				1963	-	-	0

8-982.72. Brushy Creek watershed SW-2 near Riesel, Tex.(9)

Location.--Lat 31°27'21", long 96°53'13", on Blacklands Experimental Watershed, 2 miles east of Riesel, McLennan County.

Drainage area.--0.0042 sq mi.

Gage.--Recording. Datum of gage is 544.0 ft above mean sea level.

Stage-discharge relation.--Defined by theoretical rating for 3-foot H-flume.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service, Blacklands Experimental Watershed at Riesel, Tex. Detailed information is available from the Riesel office regarding basin shape and slope, type of soils, erosion condition, watershed conditions (kind of soil cover) that bear a relationship to hydrology, and rainfall. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1939	May 20, 1939	-	1.3	1942	Sept. 8, 1942	-	12
1940	Oct. 31, 1940	-	8.0	1943	June 5, 1943	-	12
1941	June 10, 1941	-	15				

BRAZOS RIVER BASIN

8-982.75. Brushy Creek watershed W-10 near Riesel, Tex.(9)

Location.--Lat 31°27'12", long 96°53'00", on Blacklands Experimental Watershed, 2.8 miles southeast of Riesel, McLennan County.

Drainage area.--0.0308 sq mi.

Gage.--Recording. Datum of gage is 540 ft above mean sea level.

Stage-discharge relation.--Defined by theoretical rating for 6-foot Parshall flume, modified with weir for measuring low flows.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service, Blacklands Experimental Watershed at Riesel, Tex. Detailed information is available from the Riesel office regarding basin shape and slope, type of soils, erosion condition, watershed conditions (kind of soil cover) that bear a relationship to hydrology, and rainfall. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1939	May 20, 1939	-	5.8	1951	June 16, 1951	-	9.9
1940	Nov. 22, 1940	-	63	1952	May 23, 1952	-	27
				1953	May 12, 1953	-	34
1941	June 10, 1941	-	100	1954	May 11, 1954	-	42
1942	Sept. 8, 1942	-	58	1955	Mar. 21, 1955	-	32
1943	June 5, 1943	-	28				
				1956	Nov. 4, 1956	-	16
1946	May 12, 1946	-	63	1957	Apr. 19, 1957	-	84
1947	May 20, 1947	-	35	1958	Aug. 24, 1958	-	6.2
1948	Apr. 25, 1948	-	52	1959	June 23, 1959	-	39
1949	July 4, 1949	-	50	1960	Oct. 18, 1960	-	8.1
1950	Feb. 12, 1950	-	44				
				1961	June 15, 1961	-	9.5
				1962	June 9, 1962	-	16
				1963	-	-	0

8-982.81. Brushy Creek watershed W-2 near Riesel, Tex.(9)

Location.--Lat 31°27'19", long 96°52'55", on Blacklands Experimental Watershed, 2.2 miles southeast of Riesel, McLennan County.

Drainage area.--0.203 sq mi.

Gage.--Recording. Datum of gage is 521.2 ft above mean sea level.

Stage-discharge relation.--Defined by theoretical rating for 15-foot Parshall flume, modified with weir for measuring low flows.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service, Blacklands Experimental Watershed at Riesel, Tex. Detailed information is available from the Riesel office regarding basin shape and slope, type of soils, erosion condition, watershed conditions (kind of soil cover) that bear a relationship to hydrology, and rainfall. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calendar year	Date	Gage height (feet)	Discharge (cfs)	Calendar year	Date	Gage height (feet)	Discharge (cfs)
1938	Feb. 16, 1938	-	30	1950	Feb. 12, 1950	-	210
1939	May 20, 1939	-	31				
1940	Nov. 22, 1940	-	334	1951	June 16, 1951	-	10
				1952	May 23, 1952	-	63
1941	June 10, 1941	-	488	1953	May 12, 1953	-	96
1942	Sept. 8, 1942	-	267	1954	May 11, 1954	-	148
1943	June 5, 1943	-	66	1955	Mar. 21, 1955	-	128
1944	May 1, 1944	-	633				
1945	Mar. 3, 1945	-	243	1956	Nov. 4, 1956	-	21
				1957	Apr. 19, 1957	-	370
1946	May 12, 1946	-	275	1958	May 3, 1958	-	14
1947	May 20, 1947	-	55	1959	June 23, 1959	-	245
1948	Apr. 25, 1948	-	135	1960	Dec. 7, 1960	-	28
1949	July 4, 1949	-	160				
				1961	June 18, 1961	-	28
				1962	June 9, 1962	-	123
				1963	Apr. 26, 1963	-	1.3

BRAZOS RIVER BASIN

8-982.84. Brushy Creek watershed SW-6 near Riesel, Tex.(9)

Location.--Lat 31°27'13", long 96°52'47", on Blacklands Experimental Watershed, 2 miles east of Riesel, McLennan County.

Drainage area.--0.0048 sq mi.

Gage.--Recording. Datum of gage is 525.7 ft above mean sea level.

Stage-discharge relation.--Defined by theoretical rating for 3-foot H-flume.

Remarks.--Records furnished by U.S. Department of Agriculture, Agricultural Research Service, Blacklands Experimental Watershed at Riesel, Tex. Detailed information is available from the Riesel office regarding basin shape and slope, type of soils, erosion condition, watershed conditions (kind of soil cover) that bear a relationship to hydrology, and rainfall. Only annual (calendar year) peaks are shown.

Peak stages and discharges

Calen- dar year	Date	Gage height (feet)	Discharge (cfs)	Calen- dar year	Date	Gage height (feet)	Discharge (cfs)
1939	May 18, 1939	-	6.9	1942	Dec. 26, 1942	-	14
1940	Oct. 31, 1940	-	16	1943	June 5, 1943	-	4.0
1941	June 10, 1941	-	18				

8-1070. Big Elm Creek near Temple, Tex. (9)

Location.---Lat 31°03', long 97°15', 350 ft downstream from mouth of Cottonwood Creek, about 0.6 mile upstream from Little Elm Creek, and 6 miles east of Temple, Bell County.

Drainage area.--68.5 sq mi.

Gage.--Recording. Prior to May 11, 1934, staff gage at site 60 ft downstream at datum 0.35 ft lower.

Historical data.---Flood of September 1921 reached a stage of about 21 ft, from information by local residents.

Remarks.--Only maximum annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1934	Apr. 6, 1934	16.15	6,130	1936	June 30, 1936	17.82	14,200
1935	June 15, 1935	18.05	15,700				

8-1080. North Elm Creek near Ben Arnold, Tex. (17)

Location.---Lat 30°57', long 97°03', at bridge on county road between Ben Arnold and Yarrellton, 3½ miles west of Ben Arnold, Milam County.

Drainage area.--30.3 sq mi.

Gage.---Recording.

Stage-discharge relation.---Defined by current-meter measurements below 800 cfs, and extended above on basis of indirect measurement of peak discharge.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1935	June 15, 1935	6.92	2,040	1936	Dec. 6, 1935	8.90	3,540

BRAZOS RIVER BASIN

8-1150. Big Creek near Needville, Tex. (12)

Location.--Lat 29°28'35", long 95°48'45", at bridge on State Highway 36, 1.5 miles downstream from Kunz Creek, 5½ miles north of Needville, Fort Bend County, and 10½ miles upstream from Fairchild Creek.

Drainage area.--37.6 sq mi.

Gage.--Nonrecording prior to Mar. 15, 1952, and May 29, 1959, to Mar. 29, 1960. Recording from Mar. 15, 1952, to May 28, 1959, and after Mar. 29, 1960. Datum of gage is 69.39 ft above mean sea level, datum of 1929, Houston supplementary adjustment of 1943.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--10 ft.

Historical data.--Maximum stage since 1913 is that of August 1945, from information by local resident.

Remarks.--Channel was rectified in April 1955, thereby greatly increasing its capacity. Base for partial-duration series, 500 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1945	August 1945	14.4	-	1958	Oct. 15, 1957	12.31	4,500
1947	May 21, 1947	10.28	635		Nov. 18, 1957	6.89	967
	May 25, 1947	12.70	2,250		Nov. 22, 1957	8.67	1,460
1948	Dec. 13, 1947	10.08	582		Jan. 20, 1958	7.06	1,020
	May 19, 1948	9.76	528		Jan. 23, 1958	7.57	1,150
1949	Feb. 26, 1949	10.17	596	1959	Feb. 22, 1958	5.60	680
	Apr. 20, 1949	10.13	596		Oct. 10, 1958	5.64	680
	Apr. 22, 1949	10.41	664		Feb. 2, 1959	9.96	1,720
	Apr. 25, 1949	9.95	560		Feb. 11, 1959	9.48	1,720
	Aug. 7, 1949	10.08	583		Feb. 14, 1959	9.66	1,790
					Feb. 24, 1959	8.70	1,460
1950	Oct. 4, 1949	10.01	560		Apr. 9, 1959	5.03	560
	Oct. 8, 1949	12.99	2,660		Apr. 11, 1959	10.92	2,470
	Dec. 15, 1949	10.08	583		May 23, 1959	8.04	1,250
	Dec. 18, 1949	11.23	995		Aug. 26, 1959	10.45	1,620
	Feb. 13, 1950	10.75	782	1960	Oct. 31, 1959	14.03	8,900
1952	Apr. 12, 1952	11.26	1,200		Dec. 15, 1959	9.87	1,650
	Apr. 23, 1952	11.64	21,440		Dec. 31, 1959	7.10	705
	May 28, 1952	11.07	1,100		Apr. 25, 1960	7.01	685
1953	Dec. 30, 1952	9.25	590		June 26, 1960	13.81	10,400
	May 13, 1953	9.34	615		Aug. 22, 1960	6.94	665
	May 15, 1953	10.89	1,290		Aug. 29, 1960	8.95	1,210
	May 18, 1953	10.80	1,230	1961	Oct. 19, 1960	9.27	1,330
	Aug. 26, 1953	9.19	578		Oct. 29, 1960	9.75	1,590
	Aug. 30, 1953	11.53	1,670		Dec. 9, 1960	9.39	1,370
1954	Sept. 3, 1953	10.77	1,230		Dec. 30, 1960	9.28	1,330
	Nov. 19, 1953	9.52	652		Jan. 7, 1961	6.86	665
	Dec. 20, 1953	10.76	1,180		Feb. 5, 1961	8.16	960
1955	Feb. 6, 1955	10.28	1,030		Feb. 21, 1961	10.42	1,990
					June 19, 1961	12.86	6,050
1956	Jan. 22, 1956	4.98	900	1962	July 11, 1961	11.61	3,250
					Sept. 12, 1961	11.88	3,700
1957	Mar. 17, 1957	11.78	3,550		Nov. 13, 1961	8.97	1,210
	Mar. 21, 1957	7.28	1,070		May 1, 1962	6.24	545
	Mar. 31, 1957	7.60	1,150		Sept. 8, 1962	6.72	625
	Apr. 21, 1957	8.95	1,550	1963	Dec. 2, 1962	8.43	1,230
	Apr. 29, 1957	10.72	2,290		Dec. 24, 1962	8.37	1,230
	Sept. 25, 1957	4.77	526		Dec. 28, 1962	6.72	814
					Jan. 17, 1963	10.28	2,000
					Feb. 18, 1963	5.53	580
					June 30, 1963	5.67	616

a. Maximum Mar. 15 to Sept. 30, 1952; probably maximum for year.

BRAZOS RIVER BASIN

8-1155. Fairchild Creek near Needville, Tex.(12)

Location.--Lat 29°26'45", long 95°45'40", at downstream side of county road bridge, 3.0 miles upstream from mouth, and 5½ miles northeast of Needville, Fort Bend County.

Drainage area.--24.9 sq mi.

Gage.--Nonrecording. Datum of gage is 60.42 ft above mean sea level, datum of 1929, Houston supplementary adjustment of 1943.

Stage-discharge relation.--Defined by current-meter measurements below 1,800 cfs.

Historical data.--Flood of Oct. 31, 1959, is highest since 1910, from information by local residents.

Remarks.--Base for partial-duration series, 500 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1945	August 1945	12.5	-	1950	Feb. 13, 1950	9.27	966
1947	May 21, 1947	8.36	792	1951	Apr. 10, 1951	8.44	788
	May 24, 1947	8.10	732				
1948	Dec. 13, 1947	5.80	312	1952	Feb. 1, 1952	7.96	700
1949	Feb. 22, 1949	7.00	515		Apr. 13, 1952	8.01	700
	Feb. 26, 1949	8.90	880		Apr. 23, 1952	8.60	820
	Mar. 9, 1949	7.67	643		May 28, 1952	10.11	1,160
	Apr. 20, 1949	8.81	860	1953	May 16, 1953	9.54	1,010
	Apr. 22, 1949	7.71	643		May 18, 1953	12.0	2,560
1950	Oct. 4, 1949	8.30	760		Aug. 30, 1953	10.90	1,450
	Oct. 8, 1949	11.46	1,800		Sept. 2, 1953	8.98	900
	Oct. 12, 1949	8.16	740	1954	Nov. 19, 1953	9.60	1,030
	Dec. 10, 1949	8.15	740		Dec. 20, 1953	8.05	700
	Dec. 14, 1949	7.48	605	1960	Oct. 31, 1959	12.8	-
	Dec. 18, 1949	9.04	900				

8-1164. Dry Creek near Rosenberg, Tex. (12)

Location.--Lat 29°30'42", long 95°44'45", on right bank, 38 ft downstream from county road bridge, 8.2 miles upstream from Smithers Lake spillway, and 5.0 miles southeast of Rosenberg, Fort Bend County.

Drainage area.--8.53 sq mi.

Gage.--Recording. Datum of gage is 71.90 ft above mean sea level, datum of 1929, supplementary adjustment of 1943.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--10 ft.

Historical data.--Highest flood since at least 1932, Oct. 31, 1959, from information by local residents.

Remarks.--Base for partial-duration series, 250 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1959	Feb. 2, 1959	7.06	474	1961	Oct. 18, 1960	8.41	682
	Feb. 11, 1959	5.50	262		Oct. 26, 1960	7.00	460
	Feb. 14, 1959	6.77	432		Oct. 29, 1960	8.54	700
	Feb. 24, 1959	5.96	316		Dec. 9, 1960	6.60	404
	Apr. 9, 1959	7.82	584		Dec. 31, 1960	6.60	404
	Apr. 11, 1959	8.00	616		Feb. 5, 1961	6.51	390
1960	Oct. 31, 1959	12.66	2,410		Feb. 21, 1961	7.02	460
	Dec. 15, 1959	8.17	648		June 19, 1961	11.13	1,340
	Dec. 31, 1959	5.74	292		July 11, 1961	10.20	1,040
	June 26, 1960	12.11	1,600		Sept. 12, 1961	10.32	1,060
	Aug. 22, 1960	5.43	256	1962	Nov. 13, 1961	6.88	348
	Aug. 29, 1960	8.40	682	1963	Dec. 2, 1962	8.73	404
					Jan. 17, 1963	9.83	762

BRAZOS RIVER BASIN

8-1165. Dry Creek near Richmond, Tex. (12)

Location.--Lat 29°30'19", long 95°42'39", at downstream side of bridge on county road, 2.0 miles upstream from Farm Road 762, 2.3 miles south of Gulf, Colorado and Santa Fe Railway Co. bridge at Crabb, 6 miles upstream from Smither's Lake (Lake George) spillway, and 6.0 miles southeast of Richmond, Fort Bend County.

Drainage area.--11.4 sq mi.

Gage.--Nonrecording prior to June 30, 1950; recording thereafter. Datum of gage is 64.5 ft above mean sea level, datum of 1929, Houston supplementary adjustment of 1943. At datum 1.50 ft higher prior to June 30, 1950.

Stage-discharge relation.--Defined by current-meter measurements below 1,200 cfs and extended above on basis of area-velocity study and logarithmic plotting.

Remarks.--Channel rectified in 1952 and in 1956. It has been estimated that channel changes would affect the stage of floods of the magnitude of those in 1945 and in 1953 by as much as 2 or 3 ft. At site 2.2 miles upstream (Dry Creek near Rosenberg), less affected by channel rectification, the highest flood since at least 1932 was that of Oct. 31, 1959; the next two in order of magnitude are those of 1945 and 1953 from information by local residents. Base for partial-duration series, 200 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1945	August 1945	a15.1	-	1950	June 6, 1950	8.10	250
1947b/	May 21, 1947	8.05	260	1953	May 1953	15.1	-
	May 25, 1947	9.00	382				
1948	Dec. 13, 1947	7.23	173	1957	Mar. 17, 1957	8.40	1,200
1949	Feb. 19, 1949	7.54	200		Mar. 31, 1957	4.42	295
	Feb. 22, 1949	8.10	290		Apr. 21, 1957	7.16	862
	Apr. 20, 1949	8.69	280		Apr. 28, 1957	6.80	762
	Apr. 22, 1949	9.63	457		June 2, 1957	3.98	243
1950c/	Oct. 4, 1949	8.06	204	1958	Oct. 15, 1957	10.13	1,790
	Oct. 8, 1949	11.50	720		Nov. 18, 1957	5.60	452
	Dec. 18, 1949	9.60	418		Nov. 22, 1957	6.90	762
	Feb. 13, 1950	8.73	312		Jan. 20, 1958	4.75	318
				1960	Oct. 31, 1959	14.1	-

a Present datum.

b Period May to September 1947.

c Period October 1949 to June 1950.

COLORADO RIVER BASIN

8-1190. Bluff Creek near Ira, Tex. (8)

Location.--Lat 32°35'29", long 101°03'05", near left bank on downstream side of pier of abandoned county road bridge, 426 ft downstream from bridge on Farm to Market Road 1606, 1.8 miles upstream from mouth, 2.8 miles west of Ira, Scurry County, and 11.6 miles southwest of Snyder.

Drainage area.--42.6 sq mi.

Gage.--Recording. Datum of gage is 2,177.95 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 1,600 cfs and by slope-area measurements at 2,380 and 5,200 cfs.

Bankfull stage.--7 ft.

Historical data.--Maximum stage since at least 1906 occurred in 1939, stage unknown. Flood in 1948 is the second highest since 1906.

Remarks.--Base for partial-duration series, 250 cfs.

COLORADO RIVER BASIN

Peak stages and discharges of Bluff Creek near Ira, Tex.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	May 16, 1948	11.92	2,380	1957	Feb. 7, 1957	10.50	1,820
	May 25, 1948	8.80	1,410		Apr. 25, 1957	8.26	1,010
	June 1, 1948	4.08	331		Apr. 29, 1957	6.30	394
	July 5, 1948	16.22	5,200		May 10, 1957	8.60	1,120
1949	Apr. 19, 1949	4.04	320		May 12, 1957	6.84	538
	May 7, 1949	4.73	468		May 17, 1957	8.77	1,190
	June 8, 1949	3.78	266		May 25, 1957	9.70	1,520
	Aug. 17, 1949	4.83	488		May 31, 1957	6.98	580
	Aug. 20, 1949	3.87	280	1958	Apr. 17, 1958	8.80	1,190
1950	May 2, 1950	4.09	331		June 2, 1958	5.86	296
	May 11, 1950	5.50	630		June 23, 1958	9.05	1,260
	May 25, 1950	5.54	630	1959	June 1, 1959	7.21	644
1951	July 1, 1951	6.86	942		June 3, 1959	6.21	371
	Aug. 22, 1951	4.75	468		June 5, 1959	6.16	360
1952	Sept. 22, 1952	2.57	63	1960	Oct. 3, 1959	6.53	394
1953	Aug. 18, 1953	4.52	404		July 5, 1960	9.80	1,560
1954	Apr. 12, 1954	5.82	460	1961	Oct. 18, 1960	9.10	1,220
	May 11, 1954	9.12	1,490		June 8, 1961	8.95	1,150
1955	May 10, 1955	7.38	964		June 15, 1961	8.03	788
	May 23, 1955	7.76	1,100		July 13, 1961	8.45	936
	June 20, 1955	5.98	520	1962	June 8, 1962	7.53	306
1956	Oct. 5, 1955	6.74	756		June 11, 1962	7.55	316
	May 1, 1956	5.39	347		June 30, 1962	7.61	325
	May 23, 1956	6.85	788		July 26, 1962	8.75	628
	June 17, 1956	7.08	868		Sept. 6, 1962	10.22	1,260
					Sept. 17, 1962	7.60	305
				1963	Apr. 27, 1963	7.58	305
					May 22, 1963	9.92	1,100

8-1220. Graze Creek near Westbrook, Tex.(8)

Location.--Lat 32°25'03", long 101°01'10", 1.2 miles upstream from mouth and 4.2 miles north of Westbrook, Mitchell County.

Drainage area.--21.1 sq mi.

Gage.--Recording. Datum of gage is 2,092.66 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 600 cfs and by slope-area measurement at 1,630 cfs.

Historical data.--Maximum stage since at least 1919, that of June 1939, from information by local resident.

Remarks.--Base for partial-duration series, 50 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1939	June 1939	19.0	-	1957	May 9, 1957	1.66	70
1954	June 29, 1954	2.18	125	May 11, 1957	2.27	130	
				May 12, 1957	12.77	1,800	
				May 18, 1957	4.88	372	
1955	May 11, 1955	3.61	251	May 25, 1957	8.04	750	
	May 23, 1955	2.70	170	May 31, 1957	3.28	224	
	June 16, 1955	1.60	62				
	Aug. 21, 1955	2.03	110				
1956				1958	Nov. 5, 1957	1.55	54
	Oct. 1, 1955	1.82	88	June 23, 1958	2.55	156	
	May 1, 1956	12.23	1,620	Sept. 27, 1958	1.92	99	
1957				1959	May 1, 1959	1.75	80
	Oct. 29, 1956	1.77	83	July 1, 1959	2.00	107	
	Apr. 25, 1957	12.38	1,680	Sept. 10, 1959	1.57	58	
	Apr. 29, 1957	9.90	1,080				

COLORADO RIVER BASIN

8-1314. Pecan Creek near San Angelo, Tex. (7)

Location.--Lat 31°19'03", long 100°27'30", on left bank, 210 ft upstream from county road, 0.9 mile west of U. S. Highway 277, 2.4 miles upstream from mouth, and 10.1 miles south of San Angelo, Tom Green County.

Drainage area.--84.9 sq mi.

Gage.--Recording. Datum of gage is 1,910.51 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 2,100 cfs, and extended above on basis of slope-area measurements of 30,500 cfs.

Bankfull stage.--10 ft.

Historical data.--Maximum stage since at least 1908, 14.36 ft Sept. 15, 1936 (discharge, 30,500 cfs, by slope-area measurement of peak discharge).

Remarks.--Base for partial-duration series, 100 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1961	Sept. 4, 1961	7.89	171	1963	May 22, 1963	7.35	186
					Aug. 17, 1963	8.21	254
1962	Oct. 9, 1961	10.00	1,480		Sept. 12, 1963	6.10	114

8-1370. Mukewater Creek subwatershed No. 9 near Trickham, Tex. (23)

Location.--Lat 31°41'40", long 99°12'18", near center of dam on tributary to Sand Creek, 1.5 miles upstream from mouth, 4.5 miles southwest of Bangs, Brown County, and 7.1 miles north of Trickham, Coleman County.

Drainage area.--4.02 sq mi.

Gage.--Recording. Datum of gage is 1,500.01 ft above mean sea level, datum of 1929.

Remarks.--Peak discharge based on maximum inflow (average for 5 to 15-minute intervals), computed from outflow and change in reservoir contents, adjusted for rainfall on the reservoir surface during time of peak inflow. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
a1961	June 5, 1961	-	1,440	1963	May 22, 1963	-	186
1962	Oct. 9, 1961	-	44				

a Maximum for period January to September 1961.

COLORADO RIVER BASIN

8-1375. Mukewater Creek at Trickham, Tex.(23)

Location.--Lat 31°36', long 99°13', on left bank at Trickham, Coleman County, 750 ft upstream from bridge on State Farm Road 1176, 2.9 miles upstream from Hay Creek, and 6.9 miles upstream from mouth.

Drainage area.--70.0 sq mi.

Gage.--Recording. Datum of gage is 1,394.54 ft above mean sea level (State Highway Department bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 6,000 cfs and by contracted-opening measurement at 15,000 cfs.

Bankfull stage.--8 ft.

Historical data.--Maximum stage since at least 1919 occurred in 1927, from information by local resident.

Remarks.--Between 1961 and 1963, five floodwater-retarding structures were built in the basin upstream from this station. These structures have a total floodwater-retarding capacity of 2,960 acre-ft below the flood spillway crests, and partly control the flow from 15.3 sq mi above the station. Base for partial-duration series, 600 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1927	-	18	-	1957	Apr. 19, 1957	5.06	855
1951	May 22, 1951	11.40	4,900		Apr. 23, 1957	5.21	915
1952	Apr. 22, 1952	4.68	708		Apr. 26, 1957	12.45	6,760
	May 18, 1952	4.69	708		May 11, 1957	8.17	2,580
	May 24, 1952	5.82	1,140		May 18, 1957	9.27	3,430
1953	Mar. 9, 1953	4.64	690	1958	May 24, 1957	6.25	1,470
	May 12, 1953	5.25	920		Aug. 24, 1958	4.57	670
1954	Oct. 4, 1953	6.79	1,620	1959	June 2, 1959	5.10	947
	Mar. 24, 1954	6.33	1,360		June 4, 1959	11.26	5,820
	May 11, 1954	4.68	708		June 26, 1959	6.08	1,370
1955	May 10, 1955	10.85	4,320	1960	July 21, 1959	11.90	6,620
	May 18, 1955	8.52	2,460		Oct. 4, 1959	5.57	1,150
	June 5, 1955	4.70	727		Jan. 5, 1960	4.30	620
	June 7, 1955	5.62	1,060		Jan. 14, 1960	4.27	610
	June 9, 1955	4.51	671	1961	June 3, 1961	6.46	1,550
	June 15, 1955	7.54	2,040		June 17, 1961	5.87	1,280
	July 18, 1955	7.01	1,680	1962	Oct. 10, 1961	2.94	172
	Sept. 23, 1955	6.71	1,560	1963	May 20, 1963	4.47	688
1956	May 1, 1956	15.83	15,000		May 22, 1963	5.98	1,340
1957	Mar. 20, 1957	4.44	628		May 30, 1963	4.37	648
					June 16, 1963	4.29	616
					June 17, 1963	4.46	684

Note.--Some peak discharges shown since 1961 include up to about 80 cfs of combined service spillway discharge.

8-1395. Deep Creek near Mercury, Tex.(23)

Location.--Lat 31°24'10", long 99°07'15", near left bank on downstream side of bridge on Farm Road 502, 1.5 miles upstream from Dry Prong Deep Creek and 2.3 miles southeast of Mercury, McCulloch County.

Drainage area.--43.9 sq mi.

Gage.--Nonrecording Oct. 1 to Nov. 25, 1953; recording thereafter. Datum of gage is 1,325.64 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 4,500 cfs and by slope-area measurements at 5,440 and 33,600 cfs.

Bankfull stage.--14 ft.

Historical data.--Flood of July 23, 1938, was the highest since at least 1890, from information by local resident.

Remarks.--Between 1952 and 1953, five floodwater-retarding structures were built in the basin upstream from this station. These structures have a total floodwater-retarding capacity of 5,730 acre-ft below the flood spillway crests, and partly control the flow from 19.9 sq mi above the station. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1906	-	21	-	1957	May 12, 1957	16.62	3,440
1938	July 23, 1938	21.3	33,600	1958	Nov. 2, 1957	13.07	1,770
1954	Oct. 4, 1953	18.27	5,500	1959	June 3, 1959	14.96	2,450
1955	May 17, 1955	17.96	5,200	1960	Oct. 3, 1959	10.56	1,130
1956	Aug. 28, 1956	15.13	2,540	1961	June 8, 1961	6.77	307
				1962	Oct. 9, 1961	7.20	390
				1963	May 17, 1963	16.12	3,070

Note.--Some peak discharges shown since 1938 include up to about 130 cfs of combined service spillway discharge.

COLORADO RIVER BASIN

8-1400. Deep Creek subwatershed No. 8 (Dry Prong Deep Creek) near Mercury, Tex. (23)

Location.--Lat 31°23'05", long 99°08'30", near center of dam on Dry Prong Deep Creek, 1.9 miles southeast of Mercury, McCulloch County, and 3.5 miles upstream from mouth.

Drainage area.--4.32 sq mi.

Gage.--Recording. Datum of gage is 1,377.13 ft above mean sea level, datum of 1929 (levels by Soil Conservation Service).

Remarks.--Peak discharges based on maximum inflow (average for 15-minute interval) computed from outflow and change in reservoir contents, adjusted for rainfall on the reservoir surface during time of peak inflow. Base for partial-duration series, 100 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Apr. 18, 1952	-	ab500	1957	Mar. 20, 1957	-	c258
	Apr. 22, 1952	-	al20		Apr. 23, 1957	-	221
	May 18, 1952	-	al14		Apr. 26, 1957	-	c156
	May 24, 1952	-	al46		May 3, 1957	-	107
	Sept. 11, 1952	-	a252		May 11, 1957	-	c130
1953	Nov. 9, 1952	-	al22		May 12, 1957	-	c894
	Nov. 25, 1952	-	al57		May 13, 1957	-	d260
	Mar. 9, 1953	-	al07		May 18, 1957	-	654
	May 12, 1953	-	ab900	1958	Nov. 2, 1957	-	521
1954	Oct. 4, 1953	-	1,570		Feb. 22, 1958	-	190
	Apr. 30, 1954	-	114		Mar. 7, 1958	-	157
	May 11, 1954	-	277		Aug. 23, 1958	-	104
1955	Oct. 27, 1954	-	c201	1959	June 3, 1959	-	332
	Feb. 4, 1955	-	c126		June 4, 1959	-	266
	May 17, 1955	-	c2,550		June 26, 1959	-	221
	May 18, 1955	-	cl,270		July 21, 1959	-	185
	June 5, 1955	-	c294	1960	Oct. 3, 1959	-	a323
	July 18, 1955	-	cl51		Oct. 13, 1959	-	128
	Sept. 23, 1955	-	1,440		Jan. 5, 1960	-	143
1956	May 1, 1956	-	cl41		Sept. 23, 1960	-	274
	May 24, 1956	-	cl50	1961	Dec. 7, 1960	-	e217
	Aug. 28, 1956	-	557	1962	Nov. 2, 1961	-	b100
				1963	May 5, 1963	-	e 408

a Unadjusted for rainfall on water surface. b Estimated. c Average for 30-minute interval. d Average for 60-minute interval. e Annual peak only.
Note.--Maximum discharge past structure during period, 56 cfs May 19, 1955.

8-1405. Dry Prong Deep Creek near Mercury, Tex. (23)

Location.--Lat 31°24'10", long 99°08'10", near center of span on downstream side of bridge on Farm Road 502, 1.3 miles southeast of Mercury, McCulloch County, 1.7 miles downstream from floodwater-retarding structure, and 1.8 miles upstream from mouth.

Drainage area.--8.31 sq mi.

Gage.--Recording. Datum of gage is 1,339.02 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Historical data.--Flood of May 17, 1955, is the highest since at least 1924, from information by local resident.

Remarks.--In December 1951, one floodwater-retarding structure was built on the creek at a site 1.7 miles upstream from this station. This structure has a total floodwater-retarding capacity of 1,410 acre-ft below flood spillway crest, and partly controls the flow from 4.32 sq mi above this station. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1938	July 23, 1938	8.7	-	1957	May 12, 1957	6.46	664
				1958	Nov. 2, 1957	4.85	253
1952	Apr. 18, 1952	5.80	105	1959	June 4, 1959	4.95	274
1953	May 12, 1953	5.30	293	1960	Oct. 3, 1959	4.65	226
1954	Oct. 4, 1953	7.94	776	1961	Feb. 5, 1961	3.91	129
1955	May 17, 1955	9.00	2,000	1962	Oct. 9, 1961	4.32	182
1956	May 1, 1956	7.20	960	1963	May 5, 1963	5.72	425

COLORADO RIVER BASIN

8-1570. Waller Creek at 38th Street, Austin, Tex. (14)

Location.--Lat 30°17'49", long 97°43'36", on right bank 200 ft upstream from bridge at East 38th Street at Austin, Travis County, 1.1 miles upstream from West Branch of Waller Creek, and 3.3 miles upstream from Colorado River.

Drainage area.--2.31 sq mi.

Gage.--Recording. Datum of gage is 555.44 ft above mean sea level, datum of 1929, Fort Worth supplementary adjustment of 1942.

Stage-discharge relation.--Defined by current-meter measurements.

Remarks.--This station operated as research project for runoff from urban areas. Base for partial-duration series, 200 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1956	May 1, 1956	3.94	a108	1959	July 21, 1959	4.81	287
1957	Mar. 20, 1957	4.51	214	1959	Sept. 23, 1959	5.41	468
	Apr. 24, 1957	4.56	225				
	Apr. 26, 1957	4.95	326	1960	Oct. 4, 1959	4.67	251
	Apr. 28, 1957	4.68	253	1961	Oct. 16, 1960	4.58	230
	May 26, 1957	5.75	596		Oct. 18, 1960	4.45	201
	June 3, 1957	4.85	298		Oct. 29, 1960	7.77	1,970
	June 12, 1957	5.50	500		Feb. 16, 1961	5.05	355
1958	Oct. 14, 1957	5.54	518		June 17, 1961	5.88	676
	Feb. 22, 1958	4.87	304		July 9, 1961	5.68	690
	Apr. 13, 1958	4.92	318		July 13, 1961	4.94	323
	Apr. 26, 1958	5.39	464		July 17, 1961	4.94	323
	May 2, 1958	4.63	241	1962	June 3, 1962	6.00	805
	July 17, 1958	4.91	315		June 10, 1962	7.11	1,420
	July 6, 1958	5.51	500		Aug. 25, 1962	5.56	622
1959	Apr. 8, 1959	4.57	227		Sept. 8, 1962	5.07	430
	July 20, 1959	4.57	227	1963	Oct. 9, 1962	4.51	214
					June 18, 1963	4.72	263

a Maximum for period Apr. 1 to Sept. 30, 1956.

8-1575. Waller Creek at 23d Street, Austin, Tex. (14)

Location.--Lat 30°17'08", long 97°44'01", on San Jacinto Boulevard, 50 ft upstream from bridge on East 23d Street at Austin, Travis County, and 2.1 miles upstream from Colorado River.

Drainage area.--4.13 sq mi.

Gage.--Recording. Datum of gage is 509.95 ft above mean sea level, datum of 1929, Fort Worth supplementary adjustment of 1942.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--12 ft.

Remarks.--Base for partial-duration series, 600 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1951	June 12, 1951	-	a2,010	1957	June 12, 1957	5.85	2,050
1954	Oct. 23, 1953	b8.0	-	1958	Oct. 14, 1957	4.75	1,120
1955	May 18, 1955	5.40	1,640		Feb. 22, 1958	3.98	655
	May 19, 1955	4.17	762		Apr. 26, 1958	5.47	1,700
1956	May 1, 1956	3.90	615		May 2, 1958	4.58	1,010
					June 17, 1958	4.24	804
1957	Mar. 11, 1957	3.93	630		July 6, 1958	5.02	1,340
	Mar. 20, 1957	4.85	1,200	1959	Oct. 22, 1958	4.29	834
	Apr. 22, 1957	3.92	625		Apr. 8, 1959	4.68	1,080
	Apr. 24, 1957	4.15	750		July 20, 1959	4.60	1,020
	Apr. 26, 1957	4.80	1,160		July 21, 1959	4.62	1,030
	Apr. 28, 1957	4.25	810		Sept. 23, 1959	5.71	1,910
	May 26, 1957	5.32	1,580	1960	Oct. 4, 1959	4.11	726
	June 3, 1957	3.94	635				

a Peak discharge determined by slope-area measurement half a mile downstream from gage.

b Annual peak only.

c January to September.

COLORADO RIVER BASIN

Peak stages and discharges of Waller Creek at 23d Street, Austin, Tex.--Continued

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1961	Oct. 16, 1960	4.62	1,020	1962	June 3, 1962	6.40	2,270
	Oct. 29, 1960	7.96	3,710		June 10, 1962	5.70	1,700
	Feb. 16, 1961	4.37	872		Aug. 25, 1962	6.04	1,980
	June 12, 1961	4.05	692		Sept. 8, 1962	4.59	802
	June 17, 1961	5.55	1,620	1963	Oct. 1, 1962	4.47	932
	July 9, 1961	6.28	2,170		June 18, 1963	4.70	1,070
	July 12, 1961	5.70	1,730				

8-1600. Dry Creek at Buescher Lake, near Smithville, Tex.(14)

Location.--Lat 30°02'35", long 97°09'20", on left bank, 225 ft upstream from dam in Bastrop-Buescher State Park, 1.9 miles upstream from mouth, and 2.2 miles north of Smithville, Bastrop County.

Drainage area.--1.48 sq mi.

Gage.--Recording. Datum of gage is 327.86 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Inflow into lake only, and is computed on basis of change in reservoir contents plus flow over spillway. Generally, peak inflow is computed as the average inflow for a period of less than 30 minutes, unadjusted for rainfall on reservoir surface during time of peak inflow.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1940	June 30, 1940	-	1,870	1948	May 25, 1948	-	86
1941	June 7, 1941	-	903	1949	Apr. 22, 1949	-	595
	Oct. 30, 1941	-	670	1950	June 2, 1950	-	465
1942	Nov. 4, 1942	-	35	1957	Apr. 28, 1957	-	889
1943					Feb. 22, 1958	-	206
	Mar. 30, 1945	-	1,200		Apr. 11, 1959	-	252
1945					Apr. 29, 1960	-	1,200
1946	June 1, 1946	-	1,570	1961	Sept. 12, 1961	-	505
1947	Aug. 26, 1947	-	667		June 3, 1962	-	111
					Oct. 28, 1962	-	39

LAVACA RIVER BASIN

8-1635. Lavaca River at Hallettsville, Tex. (13)

Location.--Lat 29°26', long 96°57', at downstream side of bridge on U. S. Highway 77 in Hallettsville, Lavaca County, and 0.4 mile upstream from Texas and New Orleans Railroad Co. bridge.

Drainage area.--101 sq mi.

Gage.--Recording. Datum of gage is 186.72 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 23,000 cfs and extended on basis of slope-area measurement at 93,100 cfs.

Bankfull stage.--29 ft.

Historical data.--Flood of June 30, 1940, reached highest stage since at least 1840, and the flood of July 16, 1936, was second highest in the period beginning about 1870, from information by local resident.

Remarks.--Extensive channel improvements were made in 1959. Base for partial-duration series, 2,300 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1936	July 16, 1936	32.8	28,300	1949	Apr. 20, 1949	16.90	2,750
					Apr. 22, 1949	20.28	4,920
					Apr. 25, 1949	21.54	5,860
1940	June 30, 1940	40.60	93,100				
	July 3, 1940	19.00	2,320	1950	Oct. 22, 1949	16.68	2,640
1941	Oct. 29, 1940	20.76	3,220		May 27, 1950	19.17	4,130
	Nov. 5, 1940	21.72	3,980		June 2, 1950	18.80	3,900
	Nov. 24, 1940	29.36	17,000	1951	June 12, 1951	19.85	4,600
	Dec. 11, 1940	23.70	6,160				
	Dec. 15, 1940	21.94	4,180	1952	Apr. 12, 1952	19.30	4,220
	Dec. 20, 1940	19.75	2,650		May 27, 1952	26.94	11,400
	Jan. 14, 1941	20.60	3,080				
	Mar. 6, 1941	21.75	4,080	1953	May 14, 1953	15.15	1,480
	Mar. 18, 1941	19.22	2,400				
	Apr. 7, 1941	19.40	2,480	1954	Apr. 8, 1954	19.10	3,260
	Apr. 22, 1941	22.20	4,480				
	Apr. 26, 1941	19.73	2,600	1955	Feb. 4, 1955	26.84	10,200
	May 3, 1941	23.33	5,680		May 18, 1955	27.18	10,800
	May 5, 1941	21.35	3,680		Aug. 20, 1955	22.23	5,150
	May 11, 1941	22.65	4,880				
	May 22, 1941	24.55	7,400	1956	Feb. 8, 1956	14.02	1,310
	June 11, 1941	19.75	2,650				
1942	Oct. 31, 1941	19.60	4,420	1957	Mar. 31, 1957	22.62	4,880
	Apr. 8, 1942	28.43	14,500		Apr. 21, 1957	25.58	8,500
	Apr. 24, 1942	19.90	4,630		Apr. 27, 1957	25.20	7,900
	July 6, 1942	24.70	8,860		Apr. 29, 1957	26.15	9,460
1943	May 25, 1943	16.22	2,500		May 27, 1957	21.00	3,720
					Sept. 25, 1957	22.82	5,060
1944	Jan. 29, 1944	16.24	2,500	1958	Oct. 15, 1957	30.55	20,600
	Mar. 15, 1944	26.61	11,000		Oct. 22, 1957	19.10	3,440
	May 28, 1944	17.82	3,330		Nov. 22, 1957	20.17	4,140
	Aug. 30, 1944	21.50	5,860		Feb. 22, 1958	22.86	6,210
1945	Jan. 18, 1945	22.36	6,590	1959	Apr. 10, 1959	23.40	6,660
	Mar. 30, 1945	21.45	5,780		June 4, 1959	18.37	4,120
	Apr. 1, 1945	16.85	2,800	1960	Oct. 31, 1959	18.88	4,370
1946	Feb. 18, 1946	20.95	5,700		June 25, 1960	15.49	3,760
	June 1, 1946	16.90	2,800	1961	Oct. 16, 1960	24.2	13,300
	June 8, 1946	20.60	5,080		Oct. 18, 1960	28.4	29,500
	Aug. 29, 1946	19.90	4,630		Oct. 29, 1960	19.5	5,400
1947	Nov. 4, 1946	20.20	4,850		Nov. 22, 1960	15.0	2,310
	Mar. 18, 1947	21.00	5,460		Feb. 16, 1961	12.78	2,390
	Apr. 13, 1947	18.78	3,900		June 18, 1961	27.6	25,500
	May 24, 1947	18.90	3,960		Sept. 12, 1961	27.94	27,000
1948	May 27, 1948	18.45	3,650	1962	Apr. 27, 1962	16.83	4,000
					June 3, 1962	15.92	3,370
				1963	Feb. 18, 1963	14.21	2,340

GUADALUPE RIVER BASIN

8-1660. Johnson Creek near Ingram, Tex. (15)

Location.--Lat 30°06'00", long 99°17'00", on right bank, 1.3 miles upstream from Henderson Branch, 3.4 miles northwest of Ingram, Kerr County, 3.8 miles upstream from mouth, and 9.2 miles northwest of Kerrville.

Drainage area.--115 sq mi.

Gage.--Recording. Datum of gage is 1,721.30 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 1,800 cfs. Oct. 10, 1953, to Oct. 3, 1959, affected by dam below gage and extended above 1,800 cfs to 4,800 cfs by weir formula study. For other periods, extended above 1,800 cfs on basis of slope-area measurements at 9,100 and 16,000 cfs and conveyance study to 95,900 cfs.

Bankfull stage.--25 ft.

Historical data.--Maximum stage since at least 1852 occurred July 2, 1932, from information by local residents. Flood of June 14, 1935, reached a stage of about 31 or 32 ft, from information by local residents.

Remarks.--Base for partial-duration series, 50 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1932	July 2, 1932	35	a138,000	1952	June 5, 1952	8.65	6,420
					Sept.10, 1952	5.08	1,120
1942	Oct. 4, 1941	4.70	1,380		Sept.18, 1952	2.90	170
	May 7, 1942	3.73	644	1953	Apr. 1, 1953	2.26	51
1943	Oct. 18, 1942	4.05	864	1954	Apr. 30, 1954	b4.48	-
	June 5, 1943	3.35	504	1955	Oct. 27, 1954	6.15	88
1944	May 25, 1944	3.21	448		Mar. 20, 1955	6.20	105
	Aug. 30, 1944	2.13	102		May 6, 1955	7.12	749
	Sept. 6, 1944	1.85	52		May 16, 1955	6.18	85
1945	Jan. 18, 1945	4.56	1,240		May 19, 1955	6.95	580
	Mar. 29, 1945	1.85	52		July 14, 1955	6.46	208
1946	Oct. 5, 1945	1.86	49		July 17, 1955	6.13	70
1947	Oct. 8, 1946	3.13	368	1956	Apr. 29, 1956	6.19	92
	Nov. 3, 1946	9.67	9,180	1957	Oct. 15, 1956	7.10	814
	Jan. 18, 1947	6.34	3,260		Apr. 24, 1957	6.07	72
	Apr. 25, 1947	3.97	810		Apr. 27, 1957	6.21	134
	June 23, 1947	11.76	16,200		May 27, 1957	6.57	330
1948	Feb. 25, 1948	2.62	179		June 1, 1957	6.78	498
	Mar. 26, 1948	2.12	66		Sept.12, 1957	7.41	1,120
	Apr. 13, 1948	2.84	254	1958	Oct. 15, 1957	8.14	2,030
	Apr. 23, 1948	2.16	77		Feb. 22, 1958	7.56	1,290
	Apr. 25, 1948	2.05	62		May 3, 1958	7.03	648
	May 11, 1948	3.52	540		June 17, 1958	9.59	4,800
	June 24, 1948	2.06	63		June 22, 1958	6.96	847
	July 5, 1948	2.07	63		July 7, 1958	6.22	214
	July 10, 1948	2.60	173		Aug. 23, 1958	6.57	498
	Aug. 1, 1948	3.11	359		Sept.16, 1958	7.00	892
	Sept.13, 1948	2.25	92		Sept.19, 1958	6.86	749
1949	Feb. 23, 1949	2.55	96		Sept.27, 1958	8.06	2,170
	Feb. 25, 1949	5.94	2,000	1959	June 25, 1959	8.43	2,760
	Apr. 24, 1949	6.63	2,910	1960	Oct. 4, 1959	24.25	c95,900
	Sept.16, 1949	2.90	168	1962	Apr. 23, 1962	2.43	117
1950	Oct. 24, 1949	-	30		May 29, 1962	2.76	188
	June 1, 1950	-	30	1963	Dec. 2, 1962	-	18
1951	May 7, 1951	2.96	185				
	June 3, 1951	6.13	2,220				

a Result of slope-area measurement 6 of 7 miles upstream from gage.

b Backwater from dam.

c Annual peak only.

GUADALUPE RIVER BASIN

8-1676. Rebecca Creek near Spring Branch, Tex. (15)

Location.--Lat 29°55'08", long 98°22'09", on right bank 72 ft upstream from private road crossing, 2.8 miles upstream from mouth, and 4.0 miles northeast of Spring Branch, Comal County.

Drainage area.--11.0 sq mi.

Gage.--Recording. Datum of gage is 985.55 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 20 cfs and by critical-depth measurement of peak flow of 4,340 cfs.

Bankfull stage.--52 ft.

Historical data.--Maximum stage since at least 1885, 25½ ft in September 1952, from information by local residents.

Remarks.--Base for partial-duration series, 50 cfs. Rain gage at site.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1961	Oct. 18, 1960	4.54	1,490	1963	Apr. 5, 1963	6.20	4,340
	Oct. 29, 1960	6.18	4,340		May 27, 1963	2.96	179
1962	Apr. 27, 1962	2.12	3.8		Aug. 15, 1963	2.57	57

SAN ANTONIO RIVER BASIN

8-1780. San Antonio River at San Antonio, Tex.(15)

Location.--Lat 29°24'35", long 98°29'40", on right bank at downstream side of South Alamo Street Bridge, in San Antonio, Bexar County, 2.1 miles upstream from San Pedro Creek.

Drainage area.--42 sq mi, approximately.

Gage.--Nonrecording at site 1.9 miles upstream Feb. 28, 1916, to Apr. 7, 1920; recording thereafter. Datum of gage is 612.26 ft above mean sea level, datum of 1929. Datum of gages prior to Apr. 8, 1920, unknown.

Stage-discharge relation.--Defined by current-meter measurements below 2,200 cfs and by slope-area measurement at 15,300 cfs.

Historical data.--Maximum stage since 1819, that of Sept. 10, 1921; flood of July 5, 1819, equaled or exceeded that of Sept. 10, 1921. Highest recorded stage prior to 1921 occurred Oct. 23, 1914, at Commerce Street Bridge, relation to present gage not known.

Remarks.--Only annual peaks are shown. Since 1926, floodflow regulated by Olmos flood-control reservoir (capacity, 15,500 acre-ft), 8½ miles upstream.

Peak stages and discharges							
Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1915	Oct. 23, 1914	14.0	4,600	1943	Oct. 4, 1942	8.16	2,350
1916	Sept. 25, 1914	9.4	2,650	1944	Sept. 6, 1944	5.54	1,260
1917	Mar. 24, 25, May 20, 1917	1.8	147	1945	Dec. 4, 1944	7.21	1,820
1918	May 5, 1918	-	-	1946	Sept. 27, 1946	15.32	5,740
1919	Sept. 15, 1919	7.7	2,380	1947	Nov. 10, 1946	5.85	984
1920	Oct. 16, 1919	7.8	2,430	1948	Aug. 26, 1948	10.60	2,840
1921	Sept. 10, 1921	20.14	15,300	1949	June 25, 1949	7.85	1,640
1923	July 21, 1923	3.5	390	1950	Oct. 22, 1949	7.11	1,390
1924	May 26, 1924	4.5	648	1951	June 3, 1951	8.22	1,800
1925	May 10, 1925	4.5	641	1952	Sept. 18, 1952	3.47	363
1926	Apr. 20, 1926	8.3	1,940	1953	Sept. 4, 1953	7.55	1,610
1927	June 14, 1927	5.18	845	1954	June 26, 1954	5.05	758
1928	June 2, 1928	4.93	755	1955	Feb. 4, 1955	5.23	810
1929	May 24, 1929	4.32	588	1956	May 15, 1956	6.63	1,230
1940	June 29, 1940	4.45	1,040	1957	May 27, 1957	9.23	1,850
1941	Apr. 28, 1941	5.76	1,470	1958	June 22, 1958	7.34	1,210
1942	Sept. 4, 1942	5.90	1,680	1959	May 16, 1959	5.83	772
				1960	Aug. 15, 1960	10.12	2,360
				1961	July 22, 1961	12.20	3,410
				1962	Sept. 6, 1962	5.60	1,140
				1963	Sept. 12, 1963	6.50	1,500

8-1785. San Pedro Creek at San Antonio, Tex.(15)

Location.--Lat 29°25', long 98°30', at Missouri, Kansas and Texas Railway culvert, 200 ft below Arsenal Street in San Antonio, Bexar County, three-quarters of a mile upstream from Apache and Alazan Creek, and 2½ miles upstream from San Antonio River.

Drainage area.--2.64 sq mi.

Gage.--Nonrecording prior to Mar. 14, 1921; recording thereafter. Datum of gage unknown. At Commerce Street Bridge, half a mile upstream at different datum July 19, 1916, to Mar. 13, 1921.

Stage-discharge relation.--Defined by current-meter measurements below 200 cfs and extended above on basis of Kutler's formula.

Bankfull stage.--7 ft.

Historical data.--Flood of Sept. 9, 1921, at San Antonio greatly exceeded all floods of which there is any information except the flood of July 5, 1819, which probably equaled if not exceeded it.

Remarks.--Only annual peaks are shown.

Peak stages and discharges							
Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1914	October 1913	10.2	-	1922	May 2, 1922	5.25	788
1916	Sept. 25, 1916	6.25	a700	1923	Aug. 28, 1923	3.55	404
1917	Oct. 16, 1916	3.5	145	1924	Apr. 25, 1924	6.38	1,070
1918	Apr. 5, 1918	4.80	380	1925	May 10, 1925	4.8	680
1919	Sept. 15, 1919	4.45	335	1926	Apr. 20, 1926	6.40	1,070
1920	Oct. 16, 1919	3.40	170	1927	June 15, 1927	5.00	728
1921	Sept. 9, 1921	8.60	b2,020	1928	Mar. 9, 1928	6.79	1,170
				1929	May 23, 1929	5.00	728

a Maximum July 20 to Sept. 30, 1916; probably maximum for year.

b Gage height affected by backwater from Alazan Creek; discharge determined by C. K. McDonald of Office of Engineers, eighth corps area.

SAN ANTONIO RIVER BASIN

8-1791. Red Bluff Creek near Pipe Creek, Tex. (15)

Location.--Lat 29°40'48", long 98°57'20", on left bank 0.8 mile upstream from bridge on county road, 1.7 miles downstream from Pipe Creek, 1.9 miles upstream from mouth, and 3.2 miles south of town of Pipe Creek, Bandera County.

Drainage area.--56.3 sq mi.

Gage.--Recording. Datum of gage is 1,107.2 ft above mean sea level, unadjusted.

Stage-discharge relation.--Defined by current-meter measurements below 2,000 cfs and above by a slope-area measurement of 46,900 cfs.

Bankfull stage.--23 ft.

Historical data.--Maximum stage known since at least 1905, about 17 ft in July 1937.

Remarks.--Base for partial-duration series, 1,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1957	Mar. 20, 1957	6.76	1,270	1959	June 26, 1959	11.00	5,500
	Apr. 22, 1957	6.50	1,120	1960	Aug. 15, 1960	10.70	5,110
	Apr. 28, 1957	7.64	1,870				
	May 14, 1957	8.59	2,700	1961	Oct. 29, 1960	4.16	162
	May 27, 1957	8.08	2,240	1962	Apr. 23, 1962	3.19	43
	June 1, 1957	8.44	2,510				
1958	May 2, 1958	11.08	5,630	1963	Oct. 28, 1962	6.46	1,050
	June 22, 1958	6.40	1,040	1963	Apr. 28, 1963	6.87	1,300
	Sept. 7, 1958	7.60	1,830				

8-1824. Calaveras Creek subwatershed No. 6 near Elmendorf, Tex. (15)

Location.--Lat 29°22'53", long 98°17'34", near center of dam on Chupaderas Creek, tributary to Calaveras Creek, 0.4 mile north of Sayer, 9.1 miles north of Elmendorf, Bexar County, and 9.2 miles upstream from mouth.

Drainage area.--7.01 sq mi.

Gage.--Recording. Datum of gage is 516.06 ft above mean sea level, datum of 1929 (levels by U. S. Soil Conservation Service).

Remarks.--Peak discharge based on maximum inflow (average for 15-minute interval), computed from outflow and change in reservoir contents, adjusted for rainfall on the reservoir surface during time of peak inflow. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1957	Sept. 25, 1957	-	3,750	1961	June 18, 1961	-	800
1958	May 3, 1958	-	1,880	1962	Nov. 13, 1961	-	385
1959	Apr. 11, 1959	-	252	1963	-	-	(a)
1960	Oct. 4, 1959	-	419				

a Unknown.

SAN ANTONIO RIVER BASIN

8-1825. Calaveras Creek near Elmendorf, Tex. (15)

Location.--Lat 29°15'30", long 98°17'30", near center of span on downstream side of bridge on U.S. Highway 181, 2.5 miles east of Elmendorf, Bexar County, 5 miles upstream from mouth, and 10 miles southeast from city limits of San Antonio.

Drainage area.--77.2 sq. mi.

Gage.--Recording. Datum of gage is 406.45 ft above mean sea level, datum of 1929, supplementary adjustment of 1943.

Stage-discharge relation.--Defined by current-meter measurements. Subject to seasonal shifts due to heavy vegetal growth.

Historical data.--Flood of Sept. 29, 1946, was the highest since at least 1860.

Remarks.--During the period 1954-58, nine floodwater-retarding structures were built in the basin above this station. These structures have a total floodwater-retarding capacity of 13,250 acre-ft below the flood spillway crests, and partly control the flow from 37.1 sq mi above the station. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	Sept. 29, 1946	35	-	1958	Feb. 21, 1958	14.74	2,010
				1959	May 24, 1959	14.98	1,400
1955	May 16, 1955	11.73	568	1960	Oct. 4, 1959	14.22	1,370
1956	Oct. 11, 1955	12.07	607	1961	Oct. 29, 1960	13.69	1,140
1957	Sept. 25, 1957	21.83	5,310	1962	June 2, 1962	-	1,030
				1963	Nov. 27, 1962	11.34	733

Note.--Peak discharges shown since 1957 include up to about 200 cfs combined flow from floodwater-retarding structures.

8-1870. Escondido Creek subwatershed No. 1 near Kenedy, Tex. (16)

Location.--Lat 28°47', long 97°54', near center of dam on unnamed fork of Panther Creek, 500 ft upstream from State Highway 72 and 3 miles southwest of Kenedy, Karnes County.

Drainage area.--3.29 sq mi.

Gage.--Recording. Datum of gage is 350.00 ft above mean sea level, datum of 1929 (levels by Soil Conservation Service).

Remarks.--Peaks are based on maximum inflow (average for 15-minute interval), computed from outflow and change in reservoir contents, adjusted for rainfall on the reservoir surface during time of peak inflow. No adjustment made for reservoir losses. Base for partial-duration series, 100 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1955	July 12, 1955	-	986	1958	Nov. 22, 1957	-	139
	Aug. 11, 1955	-	2,100		Jan. 12, 1958	-	348
	Aug. 14, 1955	-	105		Feb. 22, 1958	-	288
1956	June 19, 1956	-	486		May 3, 1958	-	1,700
1957	Mar. 11, 1957	-	146	1959	Sept. 29, 1959	-	181
	Mar. 31, 1957	-	205	1960	Oct. 4, 1959	-	653
	Apr. 14, 1957	-	250		Jan. 14, 1960	-	166
	Apr. 20, 1957	-	1,300		July 17, 1960	-	a817
	Apr. 27, 1957	-	404		Aug. 28, 1960	-	121
	May 13, 1957	-	a560		Aug. 29, 1960	-	114
	May 27, 1957	-	a1,810		Aug. 30, 1960	-	139
	June 1, 1957	-	418	1961	Oct. 25, 1960	-	b4,990
	Sept. 22, 1957	-	359	1962	June 1, 1962	-	b745
	Sept. 23, 1957	-	268	1963	Nov. 27, 1962	-	b1,300

a Not adjusted for rainfall on water surface.

b Annual peak only.

SAN ANTONIO RIVER BASIN

8-1875. Escondido Creek at Kenedy, Tex.(16)

Location.--Lat 28°49', long 97°52', near center of span on downstream side of bridge on U.S. Highway 181 in northwest edge of Kenedy, Karnes County, 3½ miles upstream from Dry Escondido Creek, and 8½ miles upstream from mouth.

Drainage area.--82.2 sq mi, of which 36.5 sq mi is above flood-detention structures.

Gage.--Recording. Datum of gage is 246.40 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements below 4,400 cfs and extended above.

Historical data.--Maximum stage since at least 1887, that of Aug. 29, 1946, from information by local residents.

Remarks.--Flow from 36.5 sq mi above station is partly controlled by 10 floodwater-detention reservoirs, completed between Sept. 21, 1954, and Feb. 17, 1957, with a total combined capacity of 13,300 acre-ft below flood spillway crests. Only annual peaks are shown.

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	Aug. 29, 1946	24.2	12,300	1958	May 3, 1958	19.78	3,330
1955	Aug. 31, 1955	19.82	3,370	1959	June 6, 1959	18.31	2,060
1956	Sept. 2, 1956	16.77	1,250	1960	Oct. 4, 1959	17.26	1,680
1957	Sept. 23, 1957	18.45	2,160	1961	Oct. 25, 1960	23.55	10,700
				1962	June 2, 1962	14.35	688
				1963	Dec. 2, 1962	17.28	1,380

Note.--Peak discharge shown for Oct. 25, 1960 includes undetermined amount of flow over emergency spillways of floodwater-retarding structures. Peak discharges shown since 1955 include up to about 350 cfs of combined service spillway discharge.

8-1880. Dry Escondido Creek near Kenedy, Tex. (16)

Location.--Lat 28°52', long 97°50', at bridge on State Farm Road 792, 3.5 miles north of Kenedy, Karnes County, 4.0 miles upstream from Escondido Creek, and 4.0 miles southeast of Karnes City.

Drainage area.--9.43 sq mi.

Gage.--Recording. Datum of gage is 276.55 ft above mean sea level, datum of 1929.

Stage-discharge relation.--Defined by current-meter measurements.

Historical data.--Flood of May 18, 1953, was the highest since at least 1906, from information by local resident.

Remarks.--Flow from 8.43 sq mi above station is partly controlled since Jan. 31, 1958, by one flood-detention structure. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1953	May 18, 1953	16	-	1957	Apr. 21, 1957	10.53	706
1955	May 12, 1955	7.55	290	1958	Sept. 22, 1958	7.10	155
1956	Sept. 3, 1956	7.22	215	1959	Oct. 30, 1958	5.49	13

Note.--Maximum outflow from station 8-1870 was 10 cfs during period of record.

NUECES RIVER BASIN

8-1960. Dry Frio River near Reagan Wells, Tex. (22)

Location.--Lat 29°30', long 99°47', on right bank 1,000 ft upstream from Aldine School, 2 miles upstream from Rock Creek, and 4 miles southeast of Reagan Wells, Uvalde County.

Drainage area.--117 sq mi.

Gage.--Recording. Datum of gage is 1,335.2 ft above mean sea level, adjustment unknown (levels by Ground Water Branch).

Stage-discharge relation.--Defined by current-meter measurements below 720 cfs and by slope-area measurements at 11,400 and 64,700 cfs.

Historical data.--Floods of 1880 and June 14, 1935, are the highest since at least 1875, from information by local resident.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1880	-	33	-	1956	Oct. 2, 1955	2.67	34
				1957	June 1, 1957	12.0	8,000
1935	June 14, 1935	26	a64,700	1958	Sept.19, 1958	13.72	10,700
				1959	Sept.23, 1959	6.20	2,020
1953	Sept. 1, 1953	2.81	211	1960	Oct. 4, 1959	13.3	10,000
1954	May 25, 1954	14.12	11,400				
1955	Sept.24, 1955	18.68	23,200	1961	June 18, 1961	15.0	13,200
				1962	Oct. 27, 1961	2.74	55
				1963	May 6, 1963	2.98	118

a From slope-area measurement at site 2.6 miles upstream.

NUECES RIVER BASIN

8-2000. Hondo Creek near Tarpley, Tex.(15)

Location.--Lat 29°34', long 99°15', on left bank 460 ft downstream from Ranch Road 462 low-water crossing, 6.2 miles southeast of Tarpley, Bandera County, and 16.7 miles northwest of Hondo.

Drainage area.--86.2 sq mi.

Gage.--Recording. Datum of gage is 1,169.1 ft above mean sea level, adjustment unknown (Magnolia Oil Co. bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 360 cfs and by slope-area measurements at 3,340, 18,600, and 69,800 cfs.

Historical data.--Maximum stage since at least 1907, that of June 17, 1958; second highest, that in July 1932.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1932	July 1932	26.0	58,500	1958	June 17, 1958	28.2	69,800
1953	Sept. 4, 1953	7.77	3,340	1959	Apr. 7, 1959	9.20	5,200
1954	May 24, 1954	15.46	18,600	1960	Oct. 4, 1959	10.10	6,640
1955	Mar. 20, 1955	6.02	1,570	1961	June 18, 1961	-	6,500
1956	Sept. 6, 1956	4.20	510	1962	June 1, 1962	4.18	550
1957	Sept. 22, 1957	17.8	25,300	1963	Apr. 28, 1963	3.08	196

8-2015. Seco Creek at Miller Ranch, near Utopia, Tex. (22)

Location.--Lat 29°34', long 99°24', on right bank 200 ft upstream from county road crossing, 4.2 miles downstream from Cascade Creek, and 8 miles southeast of Utopia, Uvalde County.

Drainage area.--43.1 sq mi.

Gage.--Recording. Datum of gage is 1,265.8 ft above mean sea level, adjustment unknown (Magnolia Oil Co. bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 160 cfs and above by a slope-area measurement of 52,600 cfs.

Historical data.--Maximum stage since at least 1901, 16.4 ft June 17, 1958, from floodmarks (discharge, 52,600 cfs).

Remarks.--Base for partial-duration series, 1,000 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1961	June 18, 1961	4.36	1,760	1962	June 1, 1962	2.40	87
				1963	May 6, 1963	2.88	279

NUECES RIVER BASIN

8-2020. Seco Creek near Utopia, Tex.(22)

Location.--Lat 29°33', long 99°24', on right bank half a mile downstream from county road crossing, 7.6 miles upstream from Bartz Spring Creek, and 9 miles southeast of Utopia, Uvalde County.

Drainage area.--53.2 sq mi.

Gage.--Recording. Datum of gage is 1,245.8 ft above mean sea level, adjustment unknown (Magnolia Oil Co. bench mark).

Stage-discharge relation.--Defined by current-meter measurements below 290 cfs and by slope-area measurements at 1,910, 9,040, and 52,600 cfs.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1935	May 1935	19	40,000	1957	Sept. 22, 1957	11.63	12,100
				1958	June 17, 1958	21.4	b52,600
1953	Sept. 2, 1953	5.88	a1,930	1959	Apr. 7, 1959	4.27	657
1954	May 24, 1954	10.3	b9,040	1960	Aug. 15, 1960	4.87	1,040
1955	May 19, 1955	4.23	633				
1956	July 3, 1956	3.74	393	1961	June 18, 1961	5.73	1,780

a Result of slope-area measurement at gage.

b Result of slope-area measurement three-quarters of a mile upstream.

8-2025. Seco Creek near D'Hanis, Tex.(15)

Location.--Lat 29°29', long 99°23', on right bank a quarter of a mile downstream from concrete dam and road crossing at Woodward Ranch headquarters, 2.8 miles upstream from Bartz Spring Creek, and 12.8 miles northwest of D'Hanis, Medina County.

Drainage area.--87.4 sq mi.

Gage.--Recording. Datum of gage is 1,142.8 ft above mean sea level (levels by Ground Water Branch).

Stage-discharge relation.--Defined by current-meter measurements below 250 cfs and by slope-area measurements at 2,090, 8,110, and 72,000 cfs (adjusted to present site).

Historical data.--Maximum stage since at least 1866, that in May 1935. Flood of Aug. 31, 1894, second highest prior to June 17, 1958, from information by local residents.

Remarks.--Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1894	Aug. 31, 1894	16	33,000	1956	July 3, 1956	3.09	680
				1957	Sept. 22, 1957	11.18	12,400
1935	May 1935	26.2	-	1958	June 17, 1958	20.8	72,000
				1959	Oct. 22, 1958	4.21	918
1953	Sept. 2, 1953	5.03	2,090	1960	Oct. 4, 1959	4.27	966
1954	May 24, 1954	9.30	8,110				
1955	Mar. 20, 1955	4.62	1,730	1961	June 18, 1961	6.46	3,370

RIO GRANDE BASIN

8-3656. McKelligon Canyon at El Paso, Tex. (24)

Location.--Lat 31°49'20", long 106°28'15", on left bank 120 ft south of McKelligon Canyon Drive, 0.5 mile south of crest of Sugarloaf Mountain, 0.2 mile west of Albama Avenue, 1.6 miles west of U. S. Highway 54, and 4.5 miles north of El Paso post office.

Drainage area.--2.3 sq mi, approximately.

Gage.--Recording. Altitude of gage is 4,257.33 ft above mean sea level (levels by city of El Paso).

Stage-discharge relation.--Based on culvert measurement of peak flow of 76 cfs.

Remarks.--No flow except Sept. 11, 12, 1958. Flood flow controlled by four small reservoirs upstream, with a total capacity of about 95 acre-feet.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1958	Sept. 11, 1958	-	76				

a Period June to September 1958.
Note.---No flow to Sept. 30, 1963.

8-3658. Government ditch at El Paso, Tex. (24)

Location.--Lat 31°47'02", long 106°26'04", at intersection of Montana and Houston Streets, 2 miles northeast of the business center of El Paso.

Drainage area.--6.4 sq mi, approximately.

Gage.--Recording. Altitude of gage is 3,740 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 148 cfs and extended above on basis of slope-area measurement at 550 cfs.

Remarks.--Base for partial-duration series, 100 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1958	July 28, 1958	1.30	152	1960	July 14, 1960	0.84	78
	Sept. 11, 1958	2.64	550	1961	Sept. 8, 1961	2.18	374
1959	Aug. 5, 1959	.70	58	1962	Sept. 2, 1962	1.93	299
					Sept. 5, 1962	1.42	175
				1963	Aug. 18, 1963	.66	53

RIO GRANDE BASIN

8-4245. Madera Canyon near Toyahvale, Tex.(24)

Location.--Lat 30°52', long 103°58', in Jeff Davis County, 11 miles upstream from Aguja Canyon and 12 miles southwest of Toyahvale, Reeves County.

Drainage area.--53.8 sq mi.

Gage.--Nonrecording prior to Dec. 16, 1932; recording thereafter. Altitude of gage is 4,200 ft (from topographic map).

Stage-discharge relation.--Defined by current-meter measurements below 200 cfs and by slope-area measurement at 3,700 cfs.

Bankfull stage.--10 ft.

Remarks.--Base for partial-duration series, 165 cfs.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1932	Sept. 29, 1932	8.00	a5,120	1941	May 2, 1941	2.60	226
1933	Aug. 27, 1933	3.62	765		May 29, 1941	2.71	252
	Aug. 30, 1933	3.62	818		June 29, 1941	4.18	1,200
	Sept. 1, 1933	3.93	1,000		July 9, 1941	3.86	930
	Sept. 10, 1933	3.88	968		Aug. 1, 1941	2.59	220
	Sept. 19, 1933	4.60	1,520		Aug. 28, 1941	3.99	1,010
1934	June 4, 1934	3.5	660		Sept. 1, 1941	5.95	2,810
	Aug. 25, 1934	2.50	165		Sept. 12, 1941	2.40	212
1935	Sept. 4, 1935	2.41	148	1942	Sept. 14, 1941	2.39	209
1936	May 4, 1936	2.64	211		Sept. 18, 1941	4.41	1,520
	May 25, 1936	2.85	298		Oct. 1, 1941	3.44	789
	May 27, 1936	2.88	311		Oct. 25, 1941	7.70	4,760
	Aug. 19, 1936	2.59	192		Aug. 20, 1942	3.01	276
	Sept. 12, 1936	2.67	223		Aug. 22, 1942	2.73	167
	Sept. 17, 1936	2.54	177		Aug. 25, 1942	4.44	1,400
	Sept. 21, 1936	3.00	365		Aug. 31, 1942	2.73	167
	Sept. 22, 1936	3.78	870	1943	May 21, 1943	4.69	1,600
1937	Aug. 21, 1937	2.75	255		June 28, 1943	2.80	188
1938	June 26, 1938	3.50	660		July 2, 1943	3.23	419
	July 11, 1938	3.68	795		July 18, 1943	3.58	699
	July 19, 1938	4.82	1,690	1944	Aug. 24, 1944	4.45	1,400
	July 21, 1938	3.33	550		Sept. 5, 1944	4.61	1,560
	July 22, 1938	3.69	802	1945	July 2, 1945	5.55	2,360
	July 29, 1938	4.82	1,690	1946	Oct. 8, 1945	2.72	252
1939	Aug. 14, 1939	2.16	102		Sept. 20, 1946	5.80	2,610
1940	June 24, 1940	4.22	1,200	1947	Oct. 7, 1946	4.47	1,400
	Aug. 6, 1940	3.88	945		May 10, 1947	3.55	607
	Aug. 12, 1940	2.90	336	1948	July 23, 1948	3.01	377
				1949	Aug. 18, 1949	2.42	102

a Maximum Aug. 1 to Sept. 30; probably maximum for year.

8-4515. Cienegas Creek near Del Rio, Tex. (22)

Location.--Lat 29°21', long 100°57', 900 ft upstream from mouth, 1½ miles upstream from Del Rio gaging station on the Rio Grande, and 3 miles northwest of Del Rio, Val Verde County.

Drainage area.--18 sq mi.

Gage.--Recording. Datum unknown.

Remarks.--Records furnished by International Boundary and Water Commission. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1931	-	-	(a)	1934	Sept. 3, 1934	-	2,510
1932	-	-	(a)	1935	June 14, 1935	24.40	11,300
1933	-	-	(a)				

a Not determined.

RIO GRANDE BASIN

8-4530. San Felipe Creek near Del Rio, Tex. (22)

Location.--Lat 29°20', long 100°53', at Silos farm road bridge, 1.75 miles south of Del Rio, Val Verde County, and 2 miles upstream from the mouth which is 1.6 miles downstream from International Bridge.

Drainage area.--46 sq mi, all in the United States.

Gage.--Recording. At site 100 ft downstream at datum 2.38 ft lower prior to Jan. 1, 1956. Datum of gage is 877.43 ft above mean sea level, U.S. Coast and Geodetic Survey datum.

Remarks.--Backwater reaches this station when the Rio Grande near Del Rio reaches a stage of 15 ft or about 60,000 cfs. Records furnished by International Boundary and Water Commission. Only annual peaks are shown.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1932	Aug. 31, 1932	12.84	3,030	1947	June 19, 1947	14.33	10,300
1933	Nov. 5, 1932	4.38	554	1948	July 4, 1948	20.40	20,600
1934	Sept. 3, 1934	14.47	11,300	1949	Feb. 25, 1949	12.77	7,200
1935	June 14, 1935	23.20	45,000	1950	Oct. 23, 1949	3.52	464
1936	Apr. 27, 1936	11.95	6,060	1951	Sept. 16, 1951	11.38	5,450
1937	Jan. 6, 1937	1.56	99.1	1952	May 27, 1952	22.10	39,400
1938	July 24, 1938	11.25	5,320	1953	Sept. 1, 1953	13.00	7,600
1939	Aug. 4, 1939	13.94	9,440	1954	Sept. 30, 1954	a26.89	5,900
1940	June 9, 1940	13.90	9,360	1955	May 15, 1955	8.10	b2,600
1941	July 11, 1941	12.30	6,450	1956	Sept. 6, 1956	7.60	2,830
1942	May 19, 1942	15.40	12,900	1957	May 11, 1957	15.12	13,300
1943	July 11, 1943	13.60	8,750	1958	May 13, 1958	13.00	9,760
1944	June 6, 1944	8.59	2,950	1959	May 1, 1959	8.26	3,460
1945	Oct. 3, 1944	16.10	14,800	1960	July 19, 1960	6.99	2,350
				1961	June 17, 1961	9.80	5,110
1946	Oct. 9, 1945	10.50	4,570	1962	Apr. 27, 1962	5.15	1,190

a Occurred on June 28, 1954; backwater from the Rio Grande.

b Maximum peak discharge; maximum discharge during year, 5,260 cfs on Oct. 1, 1954, stage falling.